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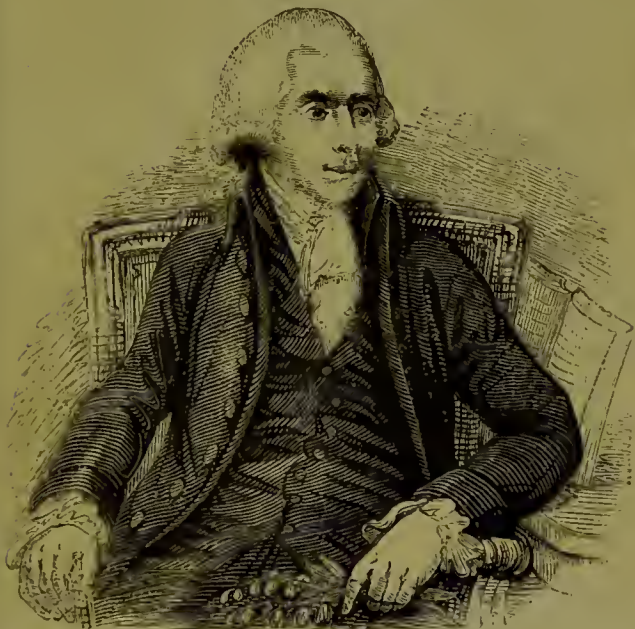


ALPHABET  
OF  
MEDICAL BOTANY,  
FOR  
THE USE OF BEGINNERS.

BY JAMES RENNIE, M. A.

PROFESSOR OF ZOOLOGY, KING'S-COLLEGE, LONDON.

A New Edition.



WILLIAM WITHERING, M.D., F.R.S.

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taunted, not for ignorance of anatomy, physiology, chemistry, or pharmacy—not for insufficient knowledge of the principles and practice of his profession—not for ignorance of any thing the scoffer knew, but for knowledge of that he knew not—for his knowledge of botany—laughed at (I repeat the memorable words) for ‘knowing a nettle under a hedge.’ Such was the ‘head and front of his offending.’

“Such was the state of medical botany when I commenced the study, and nearly such its state when I began to lecture; as things could not be worse, I adopted as my motto, ‘Spero meliora,’ and better things have come.

“Various attempts had previously been made to establish a botanical class in the medical schools of London. Wheeler, Smith, Thornton, Emerson, and others, convinced of the importance of botany to physic, had successively essayed the task, but were severally compelled to relinquish the attempt, for, although they were willing to teach, not finding students willing to learn, they abandoned the project in despair.

“Thus the early fate of each succeeding lecture resembled that of his predecessors; for even when the lectures were gratuitously given, woefully small was the class attending—sometimes the dual number was all too large for its enumeration, and often the lecturer was barely privileged to address his audience as gentlemen.

“How great is the contrast now; for instead of your Professor being almost the only lecturer in London, at

one time, I believe, left quite alone, there is a botanical lecturer in almost every school; and still, notwithstanding the competition, the classes have been rapidly increasing, and the botanical courses are now esteemed among the most popular and numerous attended in our schools. So that a pupil in his novitiate might be well excused for doubting whether it could ever have been otherwise, and this the more especially, when he finds that even the first dawnings of the science bring to light many points of interest and importance, which had hitherto been shrouded in impenetrable obscurity."

It is sanguinely to be hoped, that this awakened spirit shall increase rather than diminish in activity; though, as the study is fascinating, I may be excused, even by enthusiastic medical botanists, for cautioning the beginner not to give up to this any of the time he ought to set apart for anatomy, physiology, pathology, and chemistry; since by a due distribution of his time, leisure may be afforded for all.

*Lee, Kent, 10th Dec. 1833.*

## PLAN OF THE WORK.

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THE following little work is intended to supply a want which must be felt by every medical student, in a branch of science but very partially cultivated, though included among the requirements of professional knowledge, indispensable in examinations for medical honours. Even those who can afford to purchase the larger works of Woodville, Stephenson, and Burnett, or the still better French publications, really have not the necessary leisure to study these; while the work of Mr. Castles contains little more than an enumeration of names, accurate, I believe, so far as it goes, but certainly of small use to those who possess no other work on the subject.

I have endeavoured to compress within a brief compass, as much of the descriptive botany of the plants enumerated by the Royal Colleges as was possible, while I have introduced such outlines of the two great systems of Linnæus and of Jussieu, (the latter alleged very preposterously to be the natural system\*,) as will

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\* See Alphabet of Botany, 2nd edition, page 181, where it is proved to be a most unnatural system.

enable the beginner to understand something of the classification of plants. This design is still farther promoted by means of engraved figures, illustrative of the several classes, with careful dissections, to show the structure of the flowers.

I have, in most instances, confined myself to the mere description of plants; but in several instances, such as under rhubarb, lemon, *Tetradynamia*, I have introduced other subjects, rather than leave such blanks as the regular arrangement of the figures would have caused.

The rapid progress, which the study has very recently made, has been strongly pictured by my colleague, Professor Burnett. "When," he says, "only fifteen years of age, I became a student in the London schools, medical botany was its lowest ebb—it had become almost a by-word of reproach, and the study entailed, both on teacher and pupil, sarcasm and contempt, as if familiarity with the tools, which, as a workman, he must employ, could weaken the hand by which they must be used, or as if a knowledge of the means by which diseases may be cured, could enfeeble the mind, that should minister relief. Think not that I exaggerate—the above is no fancy sketch. Should any doubt, the following anecdote will prove that the picture is not too highly coloured; indeed, it is far from being over-wrought.

"A venerable botanist, and excellent man, who is an ornament to our profession, and a most successful practitioner, was absolutely scoffed at in the wards of a London hospital for his love of botany—publicly

# ALPHABET OF MEDICAL BOTANY.

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## THE WORD MEDICAL.

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THE word "Medical"<sup>1</sup> is intended to be used in this little book in the extended sense of affecting the health either advantageously or the contrary, and hence in the first case it will have the same meaning with "Medicinal," and in the second with "Deleterious;" but in both, the practitioner, whether he be apothecary, surgeon, or physician, may require to prescribe plants which are medicinal, and exhibit antidotes for such deleterious ones as may have been taken by accident or design. The Romans employed the term "Medicament"<sup>2</sup> in the same double meaning as did the Greeks their term for "Drug"<sup>3</sup>.

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## MEDICAL BOTANY.

Taking the word "Medical," then, in the sense pro-

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<sup>1</sup> In Latin, *Medicus*, from the Greek Μηδος, "cure" or "advice."

<sup>2</sup> In Latin, *Medicamentum*. Seneca has "Medicamentum malum," and Cicero "Medicamentum salutare."

<sup>3</sup> The Greek is Φαρμακον, whence we derive our terms "Pharmacy"—"Pharmaceutical"—and "Pharmacopœia."

posed, "Medical Botany" will include, not only all the medicinal, but also all the poisonous plants which are not medicinally prescribed. This, however, is so wide a field, that few medical students indeed ever attempt to go over a tenth part of it; and, except to those who are fond of botany in general, it is not particularly requisite: but it is indispensable to be well acquainted with all the plants enumerated in the *Materia Medica* of the Royal Colleges, and, above all, with the native plants, a knowledge of which must frequently prove of great importance.

Upon this principle, then, I have arranged my materials, directing the beginner's chief attention to the plants enumerated by the three Royal Colleges, more than two hundred in number, while I have limited the notice of other medical plants to a classification thereof according to the system of Jussieu, usually, though improperly, termed the *Natural System*. In describing the plants of the Royal Colleges, or officinal<sup>1</sup> plants, I have followed the system of Linnæus as the easiest for a beginner; but have taken care to point out, at the same time, the order to which each plant belongs in the system of Jussieu, as it has been improved by De Candolle, Richard, and others.

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#### MEDICAL ZOOLOGY.

IN the *Materia Medica* of the Royal Colleges, there are enumerated about a dozen animal substances, most of them of considerable importance; and as it is necessary for students to have a knowledge of these, I have subjoined to the botanical portion of the work, a brief account of the animals in question, on the same prin-

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<sup>1</sup> From the Latin *Officina*, "a shop."



ciple as I have described the plants. This junction of Medical Zoology with Medical Botany, is never neglected on the Continent ; but, so far as I am aware, this is the first time it has been attempted in an English elementary work, though we find it attended to in Dispensatories.

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Before proceeding to describe individual plants, it will be useful to give the beginner a short and easy outline of the Linnæan system, with the principles upon which it is founded ; and I shall assume that the beginner is altogether ignorant of Botany, though it would certainly be important for him to learn as much of the science at least as he may obtain from the "ALPHABET OF BOTANY ;" and this he might do with ease in the course of a week or a fortnight, by devoting to it a spare hour or two every day. In the mean time, I shall take it for granted that this has not been done, as I propose to begin here with the ALPHABET.

## LINNÆAN SYSTEM.

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It was the principle of Linnæus to make the flowers of plants serve as an index to his system ; and accordingly a beginner has only to make himself acquainted with the parts of a flower, as to number and a few other circumstances, in order to find where it is classed in the Linnæan system ; much in the same way as he consults the index of a book to find a particular chapter or page. The parts requisite to be known for this purpose are those in the centre of a flower, within the *corolla* of blossom-leaves, termed *petals*, which surrounds them as the sides of a cup surround what it may contain. In this view, it may be well also to state that most flowers have a double cup ; the petals being surrounded by what is termed the *calyx*. The parts in question are of two kinds ; and, with a few exceptions to be afterwards noticed, one of these, considered as the female part, is always in the very centre ; while the other, considered as the male part, stands between this and the blossom-leaves or petals. The female part is termed the *pistil*, consisting of a seed organ or *ovary* at the base, a stalk or *style* above this, and a summit or *stigma* at top ; the male part is termed the *stamen*, consisting of a stalk or *filament*, and an *anther* at top, containing a fecundating powder termed *pollen*. These terms will be readily understood by the figures in the opposite and following pages.

- In arranging the various flowering plants into classes, Linnæus had recourse to the male part, and considered the stamens, particularly according to their number, and in some of his classes according to other circumstances. The classes again he divided into orders, by considering the female part or pistil in a similar manner. In a great number of plants, then, we have

only to count the number of stamens to ascertain their class, and the number of pistils to ascertain their order in the Linnæan system. A few irregularities, however, sometimes occur in these numbers, which may for a time perplex the beginner : nature will not bend either to this or to any other system. When these preliminaries are understood, the beginner will be prepared to comprehend the interrogatory key to the system contrived by M. Lamouroux, a celebrated French botanist, which I have given in the ALPHABET OF BOTANY, but shall repeat here for the benefit of those who do not possess the book ; for though I would recommend the study of that little work also, I wish to render the present work as independent of it as possible.



Example of the principal parts in a flower. NEPAL CINQUEFOIL.  
(*Potentilla Nepalensis*.)

*a* calyx ; *b*, blossom leaves, or corolla of five petals ; *c*, stamens ;  
*d*, pistils.

## M. LAMOUREUX'S KEY TO THE LINNÆAN SYSTEM.

When a plant in flower is found, it must furnish an answer to one of the following questions :—

I. *Has it stamens and pistils ?*

No.—Then it belongs to Class 24.



Yes.—Then see question II.

II. *Are the flowers with only stamens, or only pistils, and also with both stamens and pistils ?*

Yes.—Then it belongs to Class 23.



No.—Flowers with only stamens on one plant, and pistils on another, belong to Class 22.



Flowers severally with only stamens, or only pistils on different parts of the same plant, belong to Class 21.



Flowers with both stamens and pistils included in the same flower, see question III.

III. *Do the stamens adhere to the pistil?*

Yes.—Then it belongs to Class 20.



No.—Then see question IV.

IV. *Are the stamens united by the anthers?*

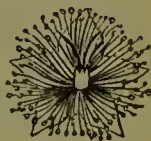
Yes.—Then it belongs to Class 19.



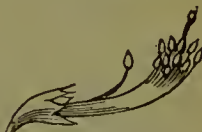
No.—Then see question V.

V. *Are the stamens united by the filaments?*

Yes.—In more than two bundles it belongs to Class 18.



In only two bundles it belongs to Class 17.



In only one bundle it belongs to Class 16.



No.—Then see question VI.

VI. *Are there only six stamens, four being larger than the rest?*

Yes.—Then it belongs to Class 15.



No.—Then see question VII.

VII. *Are there only four stamens, two being larger than the others?*

Yes.—Then it belongs to Class 14.



No.—Then see question VII.

VIII. *Are the stamens more than twelve?*

Yes.—Inserted upon the receptacle it belongs to Class 13.



Inserted upon the flower-cup, it belongs to Class 12.



IX. *How many stamens are there under thirteen?*

Twelve.—Then it belongs to Class 11.





Ten.—Then it belongs to Class 10.



Nine.—Then it belongs to Class 9.



Eight.—Then it belongs to Class 8.



Seven.—Then it belongs to Class 7.



Six.—Then it belongs to Class 6.



Five.—Then it belongs to Class 5.



Four.—Then it belongs to Class 4.



Three.—Then it belongs to Class 3.



Two.—Then it belongs to Class 2.



One.—Then it belongs to Class 1.



When this key has been mastered, which, by the aid of the figures, and some fresh flowers, may be done at a few sittings, the student may next proceed with these classes severally, beginning with the first, and taking up in succession the medical plants belonging to each, as I shall now detail.

## OFFICIAL PLANTS IN THE LINNÆAN CLASSES.

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UPON the principle of Linnæus, all plants with no apparent flower belong to his twenty-fourth class, *Cryptogamia*<sup>1</sup>; while plants with apparent flowers, or at least such as when minute can be examined with a magnifying glass, belong to one or other of his first twenty-three classes, collectively called *Phanerogamia*<sup>2</sup>.

These two great divisions of plants are no less distinct in anatomical and physiological structure, than with regard to their flowers, as has been beautifully shown by Professor De Candolle, of Geneva, who has made this structure the basis of his system. The distinction is, that the greater number of cryptogamic plants are composed of cells, are destitute of tubular vessels, and no seed-lobes are discoverable in the nascent plants. The phanerogamic plants, on the other hand, while they possess cells, have at the same time tubular vessels, and the nascent plants have one or more seed-lobes. The phanerogamic plants are farther divided into those which increase in diameter on the outside of the stem, and those which increase from the centre.

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<sup>1</sup> From the Greek κρυπτος, "concealed," and γαμος, "nuptials."

<sup>2</sup> From the Greek φανερος, "obvious," and γαμος, "nuptials."

FIRST CLASS, MONANDRIA<sup>1</sup>.



GINGER (*Zingiber officinale*.) *a*, flower ; *b*, the stamen and pistil.

In this class are arranged flowers with only one stamen, as the name imports. It contains the plants from which ginger, cardamoms, grains of paradise, turmeric, and Indian arrow-root are procured ; but the

<sup>1</sup> From the Greek *μνος*, "one," and *ἀνρ*, "male."

three last are not inserted among the plants of our royal colleges. All these rank in the first order.

*First order, Monogynia* <sup>1</sup>.

The flower in this order has a single pistil.

Zedoary (*Curcuma longa*, Roscoe.)

This perennial plant, which belongs to the Jussieuan order, *Scitamineæ*, is a native of tropical Asia, flowering in April and May. The flowers grow in spikes upon a naked flower stalk. The stamens are petal like, three lobed, with the anther, which is double and two spurred, in the middle. The root, which is the part used, is a knobbed tuber, of a finger's thickness, and whitish.

Ginger plant (*Zingiber officinale*, LOND. *Amomum zingiber*, ED. and DUB.)

This plant, which belongs to the Jussieuan order *Scitamineæ*, is a native of the East Indies, and also cultivated in the West. The root is creeping and perennial, with fleshy finger-like tubers, which is the part used medicinally. These, when the stalks fade, are taken up like potatoes, scraped, washed, and dried in the sun, and constitute white ginger. By scalding the tubers before drying, black ginger is formed. The flowers grow in a club-shaped spike.

Cardamom plant (*Matonia Cardamomum*, LOND. *Amomum repens*, ED.)

This plant, which belongs to the Jussieuan order *Scitamineæ*, is a native of the East Indies. The root is jointed; the stem erect; the leaves alternate and narrow. The flowers, which are whitish, grow in irre-

<sup>1</sup> From the Greek *μονος*, "one," and *γυνή*, "female."

gular clusters ; the calyx is double ; the fruit is a three-sided capsule, containing several angular seeds of a brown colour, which is the part used medicinally.

*Second order, Digynia* <sup>1</sup>.

The flower in this order has two pistils. It contains no officinal plants.

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SECOND CLASS, DIANDRIA <sup>2</sup>.



OLIVE (*Olea Europea*). *a*, flower, showing the two stamens, and pistil ; *b*, pistil and seed-organ.

<sup>1</sup> From the Greek δις, "twice," and γυνή, "female."

<sup>2</sup> From the Greek δις, "twice," and ανηρ, "male."



In this class are arranged such flowers as have two stamens, as the name imports. It contains the olive, hedge hyssop, rosemary, sage, manna ash, and the pepper plants.

*First order, Monogynia* <sup>1</sup>.

The flower in this order has a single pistil.

The Olive tree (*Olea Europæa*, LINN.)

This plant, which belongs to the Jussieuan order *Oleincæ*, is a native of the north of Africa and of the south of Europe, where it is much cultivated. The flowers are in opposite clusters, half the length of the leaves, on short flower stalks ; the calyx four-cleft and regular ; the corolla white, four parted, regular, and spreading. The fruit is a smooth oval plum, bitter and nauseous. The ripe fruit is bruised in a mill, to procure the oil, which is the part used.

Hedge Hyssop (*Gratiola officinalis*, LINN.)

This perennial plant, which belongs to the Jussieuan order *Personatæ*, is a native of the south of Europe, growing in moist pastures, cultivated in Britain, and flowering in June and July. The flowers are purple, solitary, on slender reddish stalks ; the calyx divided, and spreading ; the corolla tubular, and divided at the lip into four. The seed organ contains many small seeds. The plant should be gathered for use when it is in flower.

Rosemary (*Rosmarinus officinalis*, LINN.)

This evergreen shrub, which belongs to the Jussieuan order *Labiataæ*, is a native of the south of France,

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<sup>1</sup> See note <sup>1</sup>, p. 12.

and is cultivated in various countries. The stem is from seven to eight feet high; the leaves long and narrow; the flowers of a pale blue colour, in small spikes at the summit, on the branches; the calyx two-lipped; the corolla with a tube inflated above. The whole plant, cut when in flower, is used.

Sage (*Salvia officinalis*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Labiata*, is a native of the south of Europe, cultivated in our gardens and flowering in June. The flowers are in long spikes of distant whirls; the calyx is purplish, and notched; the corolla is tubular and two-lipped. The whole plant, cut when in flower and hung up in a shady place to dry, is used.

Third Order, *Trigynia*<sup>1</sup>.

The flowers in this order have three pistils, as the name imports.

Black Pepper (*Piper nigrum*, LINN.)

This climbing plant, which belongs to the Jussieuan order, *Urticeæ*, is a native of the East Indies, where it is abundantly cultivated. The flowers are white, small, and cover, thickly, a cylindrical spike, without any regular calyx or corolla. The fruit, which is the part used, is a globular berry, of a reddish brown colour, having a hot pungent taste, and an aromatic odour.

Long Pepper (*Piper longum*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Urticeæ*, is a native of Malabar and Bengal. The

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<sup>1</sup> From the Greek *τρις*, "thrice," and *γυνή*, "female."

stems are round, the leaves are pointed, the flowers are small, in dense, short, terminal spikes ; the fruit, which consists of very small, one-seeded berries or grains imbedded in a pulpy matter, is hottest in its immature state, and is, therefore, gathered while green, and dried in the heat of the sun.

Cubebs (*Piper cubeba*, LINN.)

This shrub, which belongs to the Jussieuan order, *Urticeæ*, is a native of the East Indies and Africa. The stem is jointed ; the berries wrinkled, larger than those of the black pepper, and containing a yellow almond, hard, and covered with a brown rind of an aromatic smell, of a warm, bitter, and sharp taste, not however so strong as that of black pepper.

M. Vauquelin analysed cubebs, and extracted therefrom an almost concrete volatile oil ; a resin similar to that of copaivi ; a small quantity of another coloured resin ; a coloured gummy matter ; an extractive principle similar to that in leguminous plants ; and some saline substances. M. Schönwald procured from ten pounds of cubebs above eleven ounces of a volatile oil, of the consistence of oil of almonds, of a grey colour and a bland taste. The watery decoction was somewhat acrid, the spirituous extract still more so. Cubebs have a stimulating effect, more particularly on the mucous membranes of the lungs, the bladder, and the urethra, much the same with copaivi ; and hence, as we are informed by Garcias, the Hindoos steep the drug in wine, and take it as an aphrodisiac. It may be well to mention, that cubebs are often fraudulently mixed with dried buckthorn berries, which are so like the genuine, as to deceive the inexperienced.

IS OFFICINAL PLANTS IN THE LINNÆAN CLASSES.

THIRD CLASS, TRIANDRIA<sup>1</sup>.



Sugar Cane (*Saccharum officinarum*) — *a*, Flower, showing the three stamens; *b*, the seed organ surrounded with hair.

IN this class are arranged such flowers as have three stamens, as the name imports. It contains valerian, saffron, Florentine iris, oat, wheat, barley, and sugar cane.

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<sup>1</sup> From the Greek τρις, "thrice," and ἀνρ, "male."

*First Order, Monogynia*<sup>1</sup>.

The flower in this order has a single pistil.

Valerian (*Valeriana officinalis*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Dipsacæ*, is a native of Britain, where it grows in damp and marshy situations, flowering in May and June. The stem is cylindrical, striated, and downy; the leaves deeply cut; flowers small, of a pink-white colour; stamens, three; fruit, a capsule covered with feathery hairs. Valerian root, which is the part used, has a number of small radicles, whitish internally, and yellowish externally, scarcely with any smell when fresh, but when dry acquiring a very strong and fœtid odour.

Saffron Plant (*Crocus sativus*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Irideæ*, is a native of the Levant, and cultivated in Europe. The flowers, one to three, are very large, and violet with red veins; calyx with a long and thin tube; the stamens at the base of the three external divisions of the calyx; the pistil three-cleft, and with three summits; fruit, a small, globular, and three celled capsule. The saffron of commerce consists of the long filaments, slightly rolled, of a very deep orange-red colour, of a sharp and bitter taste, and of a strong peculiar odour.

Florentine Iris (*Iris Florentina*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Irideæ*, is a native of the south of Europe, is

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(<sup>1</sup>) See note <sup>1</sup>, page 13.

cultivated in our gardens, flowering in May and June, what is called the root being somewhat jointed, and sending off many fibres ; the leaves are of a sea-green colour ; the flowers are large, of a pale whitish blue colour. The roots, as sold, are in irregular knobbed pieces, with the cuticle pared off, of a whitish colour, and full of small holes.

*Second Order, Digynia*<sup>1</sup>.

The flowers in this order have two pistils, as the name imports.

Oat (*Avena sativa*, LINN.)

This annual plant, which belongs to the Jussieuan order, *Gramineæ*, is cultivated almost every where, but its native country is unknown. The calyx or chaff is two valved, containing two flowers and two seeds, one larger with an awn, one smaller without an awn. The seeds are used in the form of grits and oatmeal for gruel.

Barley (*Hordeum distichon*, LINN.)

This annual plant, which belongs to the Jussieuan order, *Gramineæ*, is extensively cultivated. It has a long flat spike or ear with a double row of male florets on each flat side, a single row of fertile florets at each edge, and the inner chaff with an awn sixteen times its own length. The seeds, in the form of pearl barley and barley meal, are used.

Wheat (*Triticum hybernum*, LINN.)

This annual plant, which belongs to the Jussieuan order, *Gramineæ*, is extensively cultivated. The ears

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<sup>1</sup> See note <sup>1</sup>, page 14.



are long, the calyx or chaff is two valved, with awns, short in some varieties, and long in others. The seeds, in the form of flour and of bran, are used for cataplasms, &c.

Wheat flour contains 77 per cent. of starch, or, as M. Biot terms it, dextrine; 20 per cent. of gluten; and 3 per cent. of sugar, albumen, gum, and phosphate of lime. The gluten of wheat was discovered by M. Tadei to be an antidote to corrosive sublimate, probably acting by sheathing its virulence. The nutritive properties of wheat depend chiefly on the starch, while the gluten gives it that tenacity which is so important in making good bread.

#### Sugar Cane (*Saccharum officinarum*.)

This plant, which belongs to the Jussieuan order, *Gramineæ*, is a native of Asia, and also, it is said, of America, where it is cultivated. The calyx, as well as the corolla, is two valved, the flowers being in terminal panicles of many spikes, very downy. Sugar is the expressed juice evaporated of the fresh canes, and undergoes various preparations.

It is worth remarking, though sugar be unquestionably nutritive, that it will not alone sustain life. Mr. Slark, in experimenting on himself, tried to live on sugar and bread, but became alarmingly emaciated. Dogs, when wholly fed on sugar, die in a few weeks. It is often employed to render resins more easy to pulverize, and when given in conjunction with such as are acrid, it prevents them from adhering to the inner membrane of the intestines, which otherwise they might irritate and inflame. It possesses considerable antiseptic powers, and hence its use in preparing confections.

FOURTH CLASS, TETRANDRIA<sup>1</sup>.



Contrayerva (*Dorstenia contrayerva*).—*a*, Flower opened, showing the four stamens, single forked pistil, and the seed organ.

In this class are arranged such flowers as have four stamens, as the name imports. It contains Madder and Contrayerva.

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<sup>1</sup> From the Greek τετρα, "four," and ἀνρ, "male."

*First Order, Monogynia*<sup>1</sup>.

The flower in this order has a single pistil, as its name imports.

Madder (*Rubia Tinctorum*, LOND.)

This perennial plant, which belongs to the Jussicuan order, *Rubiaceæ*, is a native of the south of Europe and Africa, and is cultivated in Zealand. The flower is bell-shaped; the corolla of one petal; the branches which bear flowers spring from the joints of the stems. The root, which is the part used, is composed of long succulent fibres as thick as the finger, dug up when the plant is three years old, and dried in a stove.

The dried root has been analysed by M. Buchholz and by Dr. John, and the colouring principles which have been separated from it have been carefully examined. The most remarkable of these is called alizarine by MM. Robiquet and Colin. It has the appearance of Spanish snuff, and upon being heated, rises in a yellowish vapour, which crystallizes like native chromate of lead. When treated with solution of alum, a brownish red precipitate is formed; lime-water gives a blood red, or lake colour; acetate of lead gives a brown colour.

Contrayerva (*Dorstenia contrayerva*, WILLDENOW).

This perennial plant, which belongs to the Jussieuan order, *Urticeæ*, is a native of tropical America. The flowers are very small, closely crowded, and immersed in a common one-leaved fleshy receptacle, where also the seeds are in sockets. The root, which is the part used, is spindle-shaped, knotty, and branchy.

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<sup>1</sup> See note <sup>1</sup>, page 13.

FIFTH CLASS, PENTANDRIA<sup>1</sup>.



Hemlock (*Conium maculatum*).—*a*, Flower, showing the five stamens and two pistils,

In this class are arranged such flowers as have five stamens, as the name imports. It contains upwards of forty officinal plants.

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<sup>1</sup> From the Greek *πεντα*, "five," and *άνηρ*, "male."

*First Order, Monogynia*<sup>1</sup>.

The flower in this order has a single pistil.

Alkanet (*Anchusa tinctoria*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Boragineæ*, is a native of the south of Europe, and much cultivated near Montpellier. The flowers are purple, forming close clusters; the corolla funnel-shaped, the throat being closed with arched scales. The root, which is the part used, is long, round, and fibrous, purple without, and white within.

Deadly Night-shade (*Atropa belladonna*, LINN.)<sup>1</sup>

This shrub, which belongs to the Jussieuan order, *Solaneæ*, is a native of calcareous soils in Britain, flowering in June, and the berries ripening in September. The flowers are lurid purple, bell shaped, and drooping. The berry is large, globular, two celled, deep purple, containing many seeds. The dried leaves are used, as well as the extract.

Cayenne Pepper plant (*Capsicum annum*, LINN.)

This annual plant, which belongs to the Jussieuan order, *Solaneæ*, is a native of India, flowering in June and July. The flowers are white, and the corolla wheel-shaped, and five cleft. The fruit, which is the part used, is a long, pendulous, pod-like berry, without juice, containing several kidney-shaped seeds.

Ipecacuan plant (*Cephaëlis ipecacuanha*, RICH.)

This perennial plant, which belongs to the Jussieuan

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<sup>1</sup> See note <sup>1</sup>, page 13.

order, *Rubiaceæ*, is a native of Brazil, flowering from December to March. The flowers are crowded in a solitary fenced head ; corolla tubular, of one petal with five divisions. The fruit is a one-celled purplish berry. The root, which is the part used, is roundish, three or four inches long, rough, ringed, and brownish.

Centaury (*Erythræa Centaurium*, PERS.)

This annual plant, which belongs to the Jussieuan order, *Gentianæ*, is a native of dry gravelly pastures in Britain, flowering in July and August. The rose-coloured flowers have one petal, the corolla being wheel-shaped, with five divisions, and only opening when the sun shines. The pistil is declining, the stamens arise from the tube of the corolla, the anthers are spiral at the tip, and the seed-organ has two cells. The whole plant, gathered when in flower and dried, is used.

Pale Bark Tree (*Cinchona lancifolia*, MUTIS.)

This evergreen tree, which belongs to the Jussieuan order, *Rubiaceæ*, is a native of Ayavaca in South America, flowering from May to July. The flowers are rosy-white, in panicles of threes ; the corolla salver-shaped, and downy ; the seed-organ with two cells and many seeds. The bark, which is the part used, is blackish-brown or ash-coloured and cracked ; internally of a pale fawn colour. It is the original and best Peruvian bark, but is now rare.

Red Bark Tree (*Cinchona oblongifolia*, MUTIS.)

This evergreen tree, which belongs to the Jussieuan order, *Rubiaceæ*, is a native of the Andes of Peru, flowering in June and July. The flowers are white, and grow in large upright panicles ; the calyx is small



and purple ; the corolla spreading and hairy within. The seed-organ is large, and crowned with the calyx. The bark, which is the part used, is reddish-brown and rough without, and rust-red within, where it is woody and fibrous.

Yellow Bark Tree (*Cinchona cordifolia*, LOND.)

This evergreen tree, which belongs to the Jussieuan order, *Rubiaceæ*, is a native of Quito and Santa Fé, flowering from May till September. The flowers are pale red, growing in large leafy panicles ; the calyx is dull purple ; the corolla cottony within, the tips of the divisions being reflected ; the seed-organ crowned with the calyx. The bark, which is the part used, is greyish or tawny brown, often covered with fibrous lichens ; within it is yellow, or rather orange.

Jalap Plant (*Convolvulus Jalapa*, WILLD.)

This twining perennial, which belongs to the Jussieuan order, *Convolvulaceæ*, is a native of tropical America. The flower is of one petal, bell-shaped, plaited, reddish without, and dark purple within. The seed-organ is oval, the seeds bristled. The root, which is the part used, is irregularly egg-oblong, nearly black on the outside, the cuticle being thin and wrinkled.

Scammony Plant (*Convolvulus Scammonia*, WILLD.)

This twining perennial, which belongs to the Jussieuan order, *Convolvulaceæ*, is a native of Syria and other parts of tropical Asia. The flowers are yellow and grow in pairs ; the corolla is of one petal, funnel-shaped and plaited ; the calyx is double ; the seed-organ three or four celled. The root, which is the part used, is tapering, several feet in length, without light grey, and replete with a milky fluid.



Angustura Bark Tree ( *Bonplandia trifoliata*, WILLD.  
*Cusparia febrifuga*, LOND.)

This evergreen tree, which belongs to the Jussieuan order, *Rutaceæ*, is a native of South America. The flowers grow in clusters of from three to six; the corolla is funnel shaped of five petals united into a tube; the fruit has five capsules with one seed in each. The bark, which is the part used, is whitish and wrinkled on the outside, smooth, brownish yellow on the inside, and compact in the middle.

Thorn apple ( *Datura Stramonium*, WILLD.)

This annual plant, which belongs to the Jussieuan order, *Solaneæ*, is a native of America, partially naturalized in Britain, flowering in July and August. The flowers are large, white, funnel shaped, and plaited; the calyx tubular and five toothed. The fruit is large, roundish oblong, and studded with sharp thorns. The whole plant is used in a dried state or in form of extract.

Henbane ( *Hyoscyamus niger*, LINN.)

This annual plant, which belongs to the Jussieuan order, *Solaneæ*, is a native of Britain, growing on rubbish and road sides, and flowering in July. The flowers are lurid yellow with purplish veins, growing in thick leafy spikes; the calyx is five cleft; the corolla funnel shaped, but irregular and blunt; the seed organ is two celled, with numerous brown seeds. The whole plant is used dried or in form of extract.

Trefoil, or Buckbean ( *Menyanthes trifoliata*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Lysimachiæ*, is a native of Britain, common in bogs and marshes, and flowering in June or July. The

flowers grow in a bunch ; the calyx is five toothed ; the corolla of one petal, funnel shaped, white, tipped with rose red, and shaggy with fibres on the upper side ; the summit of the pistil is notched. The leaves, which are the part used, have three divisions like clover.

Tobacco, (*Nicotiana Tabacum*, LINN.)

This annual plant, which belongs to the Jussieuan order, *Solanæ*, is a native of America and extensively cultivated, flowering in July and August. The flowers, which are rose red, grow in large panicles ; the calyx is bell shaped and five cleft ; the corolla funnel shaped with the border plaited, and the tube twice the length of the calyx ; the stamens are inclining ; the seed organ with two cells and very numerous seeds. The leaves, which are the part used, are very broad. They are cut in autumn and dried.

Buckthorn (*Rhamnus catharticus*, LINN.)

This shrub, which belongs to the Jussieuan order, *Rhamnæ*, is a native of Britain, flowering in May and June, and ripening its berries in October. The flowers spring from the leaf-buds ; the calyx is tubular ; the corolla has scales defending the stamens arising from the calyx ; the seed organ is egg oblong ; the fruit, whose pulp is the part used, is a small black four seeded berry.

Worm Grass, or Carolina Pink, (*Spigelia Marilandica*, WILLD.)

This perennial plant, which belongs to the Jussieuan order, *Gentianæ*, is a native of America, flowering in July and August. The flowers, which are of a bright red, grow in a solitary spike ; the calyx has five leaves ; the corolla is funnel shaped, with the border five-parted ;

the seed organ is two celled, with many seeds. The root, which is the part used, consists of a bunch of slender black fibres.

Bitter Sweet (*Solanum Dulcamara*, LINN.)

This shrub, which belongs to the Jussieuan order, *Solanæ*, is a native of Britain, common in hedges, and flowering in June and July. The flowers, which are purple, are in drooping clusters; the calyx has five blunt segments; the corolla is wheel shaped, with five petals; the anthers are large, yellow, and coalesce round the pistil; the berry, which is scarlet, ripens in autumn. The fresh twigs are used for decoctions.

Nux Vomica (*Strychnos Nux vomica*, DUBL.)

This tree, which belongs to the Jussieuan order, *Apocynæ*, is a native of tropical Asia. The flowers are few and grow in a small spreading bundle; the corolla is five-cleft; the fruit is about the size of an orange, with a small woody rind, one celled and having several seeds. It is this nut which is used in the form of powder and of tincture.

Vinc (*Vitis vinifera*, LINN.)

This climbing shrub, which belongs to the Jussieuan order, *Viniferæ*, is supposed to be a native of Asia, flowering in June and July. The flowers, which are small and greenish, grow in clusters; the calyx is five-toothed; the corolla has five petals; the berries, or grapes, which vary in colour, have from one to four seeds. The grapes are used in the dried state of raisins and their fermented juice in the form of wine.

Spanish white wine, or sherry, was formerly ordered by the London College for preparing medicated wines; but dilute spirit is now substituted as more uniform in strength.

*Second Order, Digynia.*<sup>1</sup>

The flowers in this order have two pistils.

Fennel, (*Anethum fœniculum*, LINN.)

This biennial plant, which belongs to the Jussieuan order, *Umbelliferæ*, is a native of the south of Europe, but is cultivated and naturalized in Britain, flowering in July and August. The flowers, which are yellowish green, grow in umbels; the corolla has five petals; the seed, which is the part used, is egg-oblong, and three-ribbed.

Dill (*Anethum graveolens*, LINN.)

This annual plant, which belongs to the Jussieuan order, *Umbelliferæ*, is a native of the south of Europe, flowering in June and July. The flowers, which are yellowish, grow in large flat umbels; the corolla has five petals inflected at the tips. The seeds, which are the part used, are somewhat like caraway seed, but shorter, broader, and more flat.

Angelica (*Angelica archangelica*, LINN.)

This biennial plant, which belongs to the Jussieuan order, *Umbelliferæ*, is a native of northern Europe, and is cultivated in Britain, flowering from June to August. The flowers, which are greenish white, grow in globular umbels; the corolla is small, having five petals inflected at the tips; the fruit is rounded, angular, and solid. The recent plant is used as well as the dried root, and a gum resin is procured from the root.

Caraway (*Carum Carui*, LINN.)

This biennial plant, which belongs to the Jussieuan order, *Umbelliferæ*, is a native of Britain, cultivated in Essex, and flowering in May and June. The flowers, which are reddish white, grow in erect umbels, of about

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<sup>1</sup> See note <sup>1</sup>, page 14.

ten rays ; the corolla has five blunt inflected petals, keeled, and notched. The seed, which is the part used, is egg-oblong, striated, and slightly bent.

Hemlock (*Conium maculatum*, LINN.)

This biennial plant, which belongs to the Jussieuan order, *Umbelliferæ*, is a native of waste places and hedge banks in Britain, flowering in June and July. The flowers, which are white, grow in umbels of ten or twelve rays ; the corolla has five inflected petals, the outer ones larger than the inner ; the seeds are nearly globular, with five streaks, notched at the side, and smooth ; the stem is smooth, shining, and marked with irregular spots of brownish purple. The dried leaves are used, and also an extract. Many umbelliferous plants, such as chervil, are mistaken for hemlock.

Coriander (*Coriandrum sativum*, LINN.)

This annual plant, which belongs to the Jussieuan order, *Umbelliferæ*, is a native of Italy, flowering in June. The flowers, which are reddish white, grow in umbels of many rays ; the corolla is radiated of five oblong notched petals, all inflected, except those of the circumference ; the fruit is globular and indistinctly ribbed, containing two hemispherical seeds, which are the part used.

Galbanum Plant (*Bubon Galbanum*, WILLD.)

This perennial plant, which belongs to the Jussieuan order, *Umbelliferæ*, is a native of Africa and Asia, flowering in June and July. The flowers, which are yellow, grow in plano-convex umbels ; the corolla consists of five petals inflected at the tips ; the seeds, two in number in each flower, are channelled and oblong, with a membranous border. The part used is a gum procured by wounding the stem.



Carrot (*Daucus Carota*, LINN.)

This biennial plant, which belongs to the Jussieuan order, *Umbelliferæ*, is a native of Britain, in the wild state, and is extensively cultivated in the improved state, flowering in June and July. The flowers, which grow in umbels, at first flat and becoming gradually hollow, are white or yellow on the margin of the umbel, and red at its centre; the corolla has five petals, somewhat rayed; the fruit consists of two hispid seeds. The seeds of the wild carrot, and the root of the cultivated carrot, are the parts used.

Eryngo, or Sea Holly (*Eryngium maritimum*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Umbelliferæ*, is a native of the sea-shores of Britain, flowering in July and August. The flowers, which are whitish blue, grow in tufted umbels; the leaves are meally and margined with sharp thorns; the receptacle is chaffy; the seeds rough with flexible scales. The root, which is the part used, is very long and creeping.

Assafoetida (*Ferula Assafoetida*, KÆMPFER.)

This perennial plant, which belongs to the Jussieuan order, *Umbelliferæ*, is a native of Persia. The flowers grow in plano-convex compound umbels; the fruit is flattish, oval, rough, with three streaks lengthways on each side. It is the juice which exudes from the cut root which is used.

Yellow Gentian (*Gentiana lutea*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Gentianæ*, is a native of Europe, and, it is said, of America. The flowers, which are yellow, grow in whorls; the calyx is in form of a sheath; the corolla has one petal, and is wheel-shaped, with from five to

eight divisions ; the seed organ is two-valved, and one-celled, with numerous seeds. The root, which is the part used, is long, thick, cylindrical, and brownish grey.

Cumin (*Cuminum Cyminum*, WILLD.)

This annual plant, which belongs to the Jussieuan order, *Umbelliferæ*, is a native of Egypt, flowering in June. The flowers, which are purple, grow in four-rayed umbels, of about four blossoms ; the corollas have five unequal, inflected, and notched petals ; the seed-organ is large and egg-oblong ; the seed, which is the part used, is oblong and striated.

Opoponax Plant (*Pastinaca Opoponax*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Umbelliferæ*, is a native of the south of Europe, flowering in July. The flowers grow in umbels of seven or eight rays ; the corolla has five petals involuted, and without any notch ; the fruit is flattish and elliptical. The part used is the milky juice which exudes from the cut root dried.

Anise (*Pimpinella Anisum*, LINN.)

This annual plant, which belongs to the Jussieuan order, *Umbelliferæ*, is a native of Egypt, flowering in July. The flowers, which are small and white, grow in flat umbels ; the corolla has five inflected petals ; the summit of the pistil is almost globular ; the seeds, which are the part used, are oblong, bulged, striated, and somewhat green.

Sumach, or Poison Oak (*Rhus Toxicodendron*, KALM.)

This shrub, which belongs to the Jussieuan order, *Terebinthaceæ*, is a native of North America. The



male flowers grow on a distinct plant from the female flowers—the latter of which hang in loose panicles; the calyx is five parted; the corolla has five petals; the fruit is a striated berry, having one seed. The leaves, which are the part used, are ternate.

Skerret, or Water Parsnip (*Sium nodiflorum*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Umbelliferae*, is a native of rivers and ditches in Britain, flowering in July and August. The flowers, which are white, grow in small lateral umbels, opposite the leaves; the calyx is indistinct; the corolla has five petals; the fruit is egg-shaped. The part used is the expressed juice.

Elm (*Ulmus campestris*, LINN.)

This tree, which belongs to the Jussieuan order, *Amentaceae*, is a common native of Britain, flowering in March and April. The flowers, which appear before the leaves, are of a brownish colour, and grow in clusters; the calyx is five-cleft; there is no corolla; the seed organ is oblong and flattish, with a membranous border, and containing one seed. The inner bark, which is the part used, is fibrous and tough.

*Third Order, Trigynia*<sup>1</sup>.

The flower in this order contains three pistils as the name imports.

Elder (*Sambucus nigra*, LINN.)

This shrubby tree, which belongs to the Jussieuan order, *Caprifoliæ*, is a native of Britain, flowering in

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<sup>1</sup> See Note<sup>1</sup>, Page 16.

June and ripening its berries in September. The flowers, which are yellowish white, grow in large bouquets. The calyx is five parted and persistent; the corolla is five cleft, and wheel shaped; the fruit is a blackish purple berry containing three seeds. The flowers, berries, and inner bark are used.

*Fourth Order, Tetragynia*<sup>1</sup>.

This order contains no official plant.

*Fifth Order, Pentagynia*<sup>2</sup>.

The flower in this order contains five pistils, as the name imports.

Common Flax (*Linum usitatissimum*, LINN.)

This annual plant, which belongs to the Jussieuan order, *Caryophylleæ*, is extensively cultivated, flowering in July. The flower, which is of a fine light blue, grows in a panicle. The calyx has five persistent sharp pointed leaves; the corolla has five petals streaked and notched; the seed organ has five valves and ten cells; the seeds, which are the part used, are elliptical, smooth, and shining.

Purging Flax (*Linum catharticum*, LINN.).

This annual plant, which belongs to the Jussieuan order, *Caryophylleæ*, is a native of dry pastures in Britain, flowering from June to August. The flowers, which are small and white, grow in a loose panicle; the

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<sup>1</sup> From the Greek τετρα, "four," and γυν, "female."

<sup>2</sup> From the Greek πεντα, "five," and γυν, "female."

calyx has five serrated leaves; the corolla has five acute spreading petals; the seeds are yellow and shining. The whole plant is used for decoctions.

SIXTH CLASS, HEXANDRIA<sup>1</sup>.

Meadow Saffron (*Colchicum autumnale*).—*a*, The Plant as it is seen towards the close of autumn; *b*, the same, as it appears in the spring following; *c*, the flower opened to show the six stamens; *d*, the three pistils.

<sup>1</sup> From the Greek ἑξ, "six," and 'ανηρ, "male."

In this class are arranged such flowers as have six stamens, as the name imports. It contains Sweet Flag, Garlic, Onion, Leek, Aloe, Squill, Meadow Saffron, Sorrel, and Water Dock.

*First Order, Monogynia<sup>1</sup>.*

The flower in this order has a single pistil, as the name imports.

Sweet Flag (*Acorus Calamus*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Aroideæ*, is a native of Europe and Asia, flowering in May and June. The flowers, which are small and green, grow in a close spike four inches in length. There is no calyx; the corolla has six naked petals, erect and inflected at the tip; the seed organ is elliptical, and three celled. The root, which is the part used, is jointed and crooked.

Garlic (*Allium sativum*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Liliaceæ*, is very generally cultivated, flowering in July. The flowers, which are small and white, grow intermixed with bulbs from a sheath opening laterally. The corolla is six parted and spreading; the seed organ is short and angular, with three cells. The bulbs, termed cloves, are the part used.

Leek (*Allium Porrum*, LINN.)

This biennial plant, which belongs to the Jussieuan order, *Liliaceæ*, is a native of Europe, flowering in June. The flowers, which are purplish, grow in globular umbels. The corolla is six parted, the petals being rough

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<sup>1</sup> See Note<sup>1</sup>, Page 13.

and keeled ; the leaves are broad and flag-like. The whole plant is used.

Onion (*Allium Cepa*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Liliaceæ*, is very commonly cultivated, flowering in June. The flowers grow from a sheath which falls off, in the form of a spherical umbel. The whole plant, or the bulb only, is used.

*Second Order, Digynia*<sup>1</sup>.

This order contains rice, &c., but no officinal plant.

*Third Order, Trigynia*<sup>2</sup>.

The flowers in this order have three pistils, as the name imports.

Meadow Saffron (*Colchicum autumnale*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Colchicææ*, is a native of moist meadows in Britain, flowering in September, and ripening its seed the following June. The flower, which is lilac purple, appears after the spring leaves have withered away. There is no calyx ; the corolla is six parted, the tube extending to the bulb ; the seed organ has three lobes and three cells. The expressed juice of the flowers, the seeds, and bulbs, which are taken up from June till August, are used.

It was first discovered by Dr. Wilson of Yoxford, Suffolk, that the celebrated gout nostrum, the Eau Médicinale of Husson, was composed of the expressed juice of the flowers of this plant. Previous to this, Husson's nostrum was conjectured to be composed of hellebore, hyoscyamus, hedge hyssop, and several

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<sup>1</sup> See Note<sup>1</sup>, Page 14.

<sup>2</sup> See Note<sup>1</sup>, Page 16.

other things. The formula given by Dr. Wilson is : Take two parts of the expressed juice of the flowers of meadow saffron and one part brandy. Mix them, and, in order to allow the impurities to subside, set apart the mixture for a few days in a vessel, and then decant off the clear liquor, and keep it in bottles closely stopped for use. When too little spirit is added, the Eau Médicinale is liable to effervesce and become sour. Neither wine, nor the bulbs of the colchicum enter into the composition, as Dr. Parris, Mr. Brande, and others affirm. Dr. Wilson's own Gout Tincture, which, according to the experiments of Dr. Parris, is the strongest known preparation of colchicum, is probably made from the flowers. Sir H. Haller supposes colchicum to be the hermodactyl of old writers ; but this is not the opinion of continental authors. The activity of the plant appears to depend on the veratrine which it contains.

#### Sorrel (*Rumex acetosa*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Polygonæ*, is a common native of Britain, flowering in June. The flowers, which are reddish, grow in branched panicles. The calyx is three leaved and small ; the corolla has three small converging petals ; the seed is one and three sided. The leaves are the part used.

#### Water Dock (*Rumex aquaticus*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Polygonæ*, is a native of river banks in Britain, flowering in July and August. The flowers grow nodding in approximating whorls. The valves are large, egg oblong, and veined ; the seed is large. The root, which is the part used, is very thick.



SEVENTH CLASS, HEPTANDRIA<sup>1</sup>.

Horse Chestnut (*Æsculus Hippocastanum*).—*a*, Flower, showing the seven stamens and single pistil; *b*, the fruit.

In this class are arranged such flowers as have seven stamens as the name imports. It contains the Horse Chestnut.

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<sup>1</sup> From the Greek 'ηπτα, "seven," and 'ανηρ, "male."



*First Order, Monogynia*<sup>1</sup>.

The flower in this order has a single pistil, as the name imports.

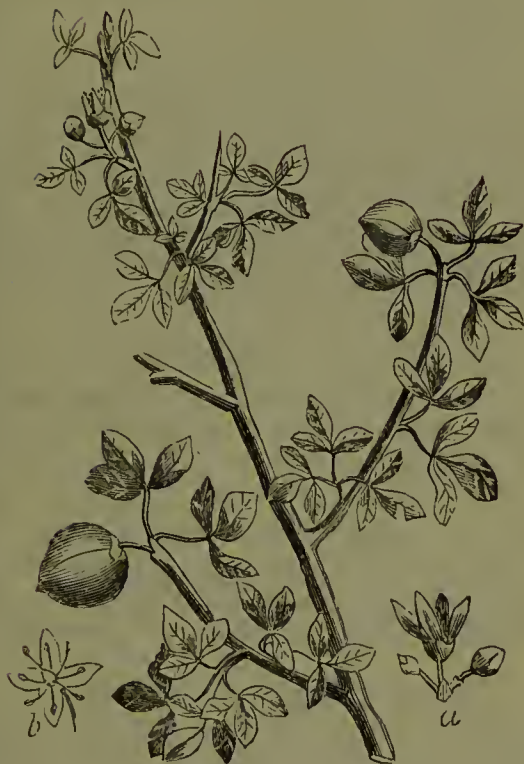
Horse Chestnut (*Æsculus Hippocastanum*, LINN.)

This tree, which belongs to the Jussieuan order, *Accerideæ*, is a native of Asia, cultivated in Britain, and flowering in April and May. The flowers, which are reddish white, grow in large spikes. The calyx has one inflated leaf; the corolla five spreading downy petals arising from the calyx: the seed organ is three celled; the seeds are large, smooth, and round. The bark is the part used.

As the bark contains a considerable proportion of tannin, it may be used for tanning leather. It has also been successfully employed as a yellow dye-stuff. The nuts, when decayed, form a sort of jelly, which is said to be a good substitute for soap in washing. The nuts are greedily devoured by sheep, deer, and swine; and when boiled they may be advantageously employed in feeding poultry. In Turkey, Evelyn informs us, they are ground and mixed with the provender of horses; from which circumstance, as the tree was introduced into Europe from Asiatic Turkey, the name appears to have originated. M. Canzoneri discovered a new chemical principle in the bark and in the husk of the nut, which he calls *Æsculine*, and supposes to be the base of the known febrifuge qualities of the bark. It is of a buff colour, tastes sweetish and somewhat sharp, is soluble in alcohol and ether, and burns with a flame similar to oil. In the state of a sulphate, it crystallises in silky needles similar to asbestos.

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<sup>1</sup> See Note<sup>1</sup>, Page 13.

EIGHTH CLASS, OCTANDRIA<sup>1</sup>.

Balsam of Gilead Tree (*Amyris Gileadensis*).—*a*, flower; *b*, the same, showing the eight stamens, and single pistil.

IN this class such flowers are arranged as have eight stamens, as the name imports. It contains the Elemi Tree, the Balsam of Gilead Tree, Mezereon, and Bistort.

<sup>1</sup> From the Greek *ὀκτώ*, "eight," and *ἀνρ*, "male."

*First Order, Monogynia*<sup>1</sup>.

The flower in this order has a single pistil, as the name imports.

Elemi Tree (*Amyris elemifera*, WILLD.)

This tree, which belongs to the Jussieuan order, *Terebinthaceæ*, is a native of tropical America. The flowers, which are white, grow in bunches; the calyx is four toothed; the corolla has four oblong inflected petals; the berry is of the size and form of an olive. The part used is a resin, procured by incisions of the bark.

Balsam of Gilead Tree (*Amyris Gileadensis*, WILLD.)

This tree, which belongs to the Jussieuan order, *Terebinthaceæ*, is a native of Abyssinia. The flowers, which are white, grow three on a stalk, and two of these are commonly infertile. The calyx is four-toothed and persistent; the corolla has four concave spreading petals; the seed-organ is egg-oblong; the fruit opens with four valves, containing a small nut. The part used is a balsam, procured by incision.

Mezereon (*Daphne mezereum*, LINN.)

This shrub, which belongs to the Jussieuan order, *Thymeleæ*, is a native of Britain, not uncommon in gardens, flowering in March. The flowers, which appear before the leaves, are pink or white; the calyx is wanting; the corolla is four-cleft, and of one pistil; the fruit is a red berry, containing one seed. The bark of the root is the part used.

The bark was minutely analysed by Gmelin, who found it to contain wax, resin, a peculiar principle

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<sup>1</sup> See note<sup>1</sup>, p. 13.

termed Daphnin, red colouring matter, uncrystallisable and fermentable sugar, azotiferous gum, lignin, brown colouring matter, malic acid, and some malates. Daphnin was discovered by Vauquelin in the Alpine species by digesting the bark in alcohol, evaporating the liquid to separate the resin, diluting what remained with water, filtering this to free it from impurities, and then treating it with acetate of lead. The precipitate thence obtained, on being separated from the lead by means of hydrogen gas, is of a yellow colour. It crystallises in fasciculated prisms, colourless, transparent, brilliant, very soluble in water, alcohol, and ether, and assuming a golden colour with a little carbonate of potass. It is convertible into oxalic acid by means of nitric acid. On being heated it rises in acrid vapour. On this principle, the stimulant effects of mezereon bark depend.

*Second Order, Digynia* <sup>1</sup>.

This order contains no officinal plants.

*Third Order, Trygynia* <sup>2</sup>.

The flower in this order has three pistils, as the name imports.

Bistort (*Polygonum Bistorta*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Polygonaceæ*, is a native of Britain, flowering in May and June. The flowers, which are pale rose-red, grow in a close spike on a tall stem; the corolla is five parted; the seed-organ is triangular and red, containing one angular, shining, brown seed. The root, which is woody and tortuous, is the part used.

<sup>1</sup> See note<sup>1</sup>, p. 14.

<sup>2</sup> See note<sup>1</sup>, p. 16.

NINTH CLASS, ENNEANDRIA<sup>1</sup>.

Cinnamon (*Laurus cinnamomum*).—*a*, flower, showing the nine stamens; *b*, anther magnified, showing the apertures, with their lids, for the discharge of the pollen; *c*, the single pistil.

In this class such flowers are arranged as have nine stamens, as the name imports. It contains the Camphor Tree, the Cassia Tree, the Cinnamon Tree, the Laurel, the Sassafras Tree, and the Rhubarb Plant.

<sup>1</sup> From the Greek, ἑννεα, "nine," and ἀνήρ, "male."

*First Order, Monogynia*<sup>1</sup>.

The flower in this order has one pistil, as the name imports.

Cinnamon Tree (*Laurus Cinnamomum*, LINN.)

This evergreen trec, which belongs to the Jussieuan order, *Laurineæ*, is found in tropical Asia, particularly Ceylon, flowering in January. The flowers, which are white, grow in axillary panicles. There is no calyx ; the corolla has six petals, oval pointed, and spreading ; the fruit is an oval berry, with a depressed tip, and one seed. The bark, which is the part used, is taken off from May till October. It is much thinner, and more smooth and splintery, than cassia bark.

Cassia Tree (*Laurus Cassia*, LINN.)

This evergreen tree, which belongs to the Jussieuan order, *Laurineæ*, is a native of tropical Asia. It is uncertain whether it is not only a variety of the cinnamon. The fruit is an egg-oblong black berry, with a sharp tip. What are called cassia buds are not from this, but from the cinnamon tree.

Camphor Laurel (*Laurus Camphora*, LINN.)

This evergreen tree, which belongs to the Jussieuan order, *Laurineæ*, is a native of North America and Asia. The flowers, which are small and white, grow in close clusters. There is no calyx ; the corolla has six small egg-oblong petals ; the seed-organ is roundish ; the fruit is a red oval berry. The roots, wood, and leaves are used, from which to distil camphor ; but this is also produced from *Dryobalanops Camphora*, a very different tree.

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<sup>1</sup> See note<sup>1</sup>, p. 13.



Sweet Bay Tree (*Laurus nobilis*, LINN.)

This evergreen tree, which belongs to the Jussieuan order, *Laurineæ*, is a native of the south of Europe, common in our shrubberies, flowering in April and May. The flowers, which are of a yellowish white, grow in short clusters, the male flowers on different plants from the female flowers. The corolla in both has four oval divisions. The berry is dark-blackish purple. The parts used are the leaves and berries, whence an oil is procured.

Sassafras Tree (*Laurus Sassafras*, LINN.)

This tree, which belongs to the Jussieuan order, *Laurineæ*, is a native of North America and Asia, flowering in May and June. The flowers, which are small, and greenish white, grow in hanging panicles. There is no calyx; the corolla has six narrow, convex divisions; some flowers have stamens, only nine in number, and no pistils; other flowers have both stamens, six in number, and one pistil. The berry is deep blue, in a small red cup. The wood, root, and bark are the parts used.

*Second Order, Dygynia* <sup>1</sup>.

The flower in this order has three pistils, as the name imports.

Indian Rhubarb (*Rheum palmatum*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Polygoneæ*, is a native of Asia, cultivated in our gardens, and flowering in May. The flowers, which are small and white, grow in panicled clusters. There

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<sup>1</sup> See note<sup>1</sup>, p. 14.



is no calyx ; the corolla is six cleft, the divisions being blunt ; the seed organ has three membranous margins and encloses a triangular seed. The root is the part used.

Wavy-leaved Rhubarb (*Rheum undulatum*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Polygoneæ*, is a native of Asia, cultivated in our gardens, and flowering in May. The flowers, which are white, grow in bunches on a pale brown stem about four feet high. The leaves are not palmated, as in the preceding, but wavy. The root is the part used.

Rhubarb is sometimes cultivated in England for medical purposes, but it does not pay well, and our chief supply is from Russia, Turkey, India, and China. This is not always to be had genuine, from the artful way in which the inferior sorts are fraudulently dressed up by rasping and dyeing them, a practice that is said to employ a considerable number of persons in London.

Several chemical principles have been announced as discoverable in rhubarb, but some uncertainty still prevails respecting these. Rhubarbarine was discovered by M. Pfaff, who describes it as solid, dark brown, opake, of a disagreeable odour, and of a nauseous and bitter taste. M. Nani describes an alkaline principle which he terms rhabarbarine, but whether it be the same as M. Pfaff's, I am not aware. Rheumic acid, as procured from the stem of the garden rhubarb, by M. Lassaigne, does not appear to differ from oxalic acid. Mr. Brande, on analysing rhubarb, says, he found no oxalate nor sulphate of lime in it ; but Dr. Paris and Dr. A. T. Thomson say it contains both of these.

TENTH CLASS, DECANDRIA<sup>1</sup>.



Senna (*Cassia Senna*).—*a*, Flower showing the ten stamens, and single pistil.

In this class such flowers are arranged as have ten stamens, as the name imports. It contains seventeen official plants.

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From the Greek δέκα, "ten," and 'ανηρ, "male."

*First Order, Monogynia*<sup>1</sup>.

The flower in this order has one pistil, as the name imports.

Bearberry (*Arbutus Uva ursi*, LINN.)

This shrub, which belongs to the Jussieuan order, *Ericineæ*, is a native of the Scottish mountains, flowering in June. The flowers, which are reddish, grow in small clusters on a red flower-stalk. The calyx is small, five parted, and toothed; the corolla is tubular, with five minute blue divisions; the fruit is a small red berry, with five cells and five seeds. The leaves, which are like those of myrtle, with a network of pale green veins on the under surface, are the part used.

Purging Cassia Tree (*Cassia Fistula*, LINN.)

This tree, which belongs to the Jussieuan order, *Leguminosæ*, is a native of the tropics, flowering in June. The flowers, which are golden yellow, grow on long hanging spikes. The calyx has five blunt leaves; the corolla has five unequal, waved, spreading petals, the plant is a large woody pod two feet long, with numerous cells, each containing a black pulp, which is the part used, enveloping a single seed.

Senna Plant (*Cassia Senna*.)

This annual plant, which belongs to the Jussieuan order, *Leguminosæ*, is a native of Africa, flowering in July and August. The flowers, which are yellow, grow in loose spikes; the calyx has five narrow leaves; the corolla has five petals, the two upper smaller than the

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<sup>1</sup> See Note<sup>1</sup>, Page 13.

three under ones ; the fruit has two valves and from six to nine cells, with a seed in each. The leaves, which are the part used, are winged, the leaflets being *unequal at the base*.

Copaiva Tree (*Copaifera officinalis*, WILLD.)

This tree, which belongs to the Jussieuan order, *Leguminosæ*, is a native of tropical America. The flowers, which are white, grow in stiff spreading clusters. There is no calyx ; the corolla has four oblong, acute, concave petals ; the fruit is a two-valved pod with one egg shaped seed. The part used is a balsam procured by incision.

Guaiac Tree (*Guaiacum officinale*, LINN.)

This tree, which belongs to the Jussieuan order, *Rutaceæ*, is a native of tropical America. The flowers, which are of a fine blue, grow in umbels. The calyx is five parted and unequal ; the corolla has five concave spreading petals ; the seed organ is oval, five-angled, and five celled. The wood is the part commonly used.

Logwood Tree (*Hæmatoxylon Campechianum*.)

This tree, which belongs to the Jussieuan order, *Leguminosæ*, is a native of tropical America, flowering in March and April. The flowers, which are fine reddish yellow, grow in spiked clusters ; the calyx is five-parted ; the corolla with five spreading petals ; the fruit is a two valved pod with five or six kidney-shaped seeds. The wood is the part used.

Quassia Tree (*Quassia excelsa*, LINN.)

This tree, which belongs to the Jussieuan order, *Magnoliæ*, is a native of tropical America, flowering in

October and November. The flowers, which are small and yellowish green, grow in clusters ; the calyx is very small and five leaved ; the corolla has five petals. The fruit is small and black, attached in threes. The wood is the part used.

Simaruba Tree (*Quassia Simaruba*, LINN.)

This tree, which belongs to the Jussieuan order, *Magnoliæ*, is a native of tropical America. The flowers, which are white, grow, both male and female, on the same panicles. The calyx has one five toothed leaf ; the corolla has five petals inserted into the calyx ; the fruit has five one celled berries, opening spontaneously when ripe. The part used is the bark of the root.

Golden Laurel Rose (*Rhododendron chrysanthemum*,  
WILLD.)

This evergreen shrub, which belongs to the Jussieuan order, *Rhodoraceæ*, is a native of Siberia, flowering in June and July. The flowers, which are large and golden yellow, grow in umbels ; the calyx is five parted and persistent ; the corolla is somewhat funnel shaped, irregularly five parted, and spreading ; the seed organ is five celled, and angular, with numerous seeds like sawdust. The leaves are the part used.

Rue (*Ruta graveolens*, LINN.)

This evergreen perennial, which belongs to the Jussieuan order, *Rutaceæ*, is a native of the south of Europe, common in gardens and flowering in June and September. The flowers, which are yellowish green, grow in bundles. The calyx and corolla of the first blown flowers are five parted ; of the next only four parted ; the petals are concave ; the receptacle has ten

honey points around it; the seed organ is lobed, and the seeds rough and black. The leaves, which are sea green, are the part used.

Benjamin Tree (*Styrax Benzoin*, WILLD.)

This tree, which belongs to the Jussieuan order, *Dyospyreæ*, is a native of Sumatra. The flowers, which are ashy grey, grow in clusters; the calyx is inferior, bell shaped and downy; the corolla is funnel shaped, and has five petals four times as long as the calyx; the seed organ is egg-oblong and two seeded. The part used is a gum procured by incision.

Storax Tree (*Styrax officinalis*, LINN.)

This tree, which belongs to the Jussieuan order, *Dyospyreæ*, is a native of the South of Europe, flowering in July. The flowers, which are white, grow in clusters. The calyx is inferior; the corolla large and funnel-shaped; globular stone fruit, juiceless, and containing one or two flattish nuts.

Indian mahogany (*Swietenia febrifuga*, ROXB.)

This evergreen tree, which belongs to the Jussieuan order, *Meliaceæ*, is a native of tropical Asia. The flowers, which are red, grow in panicles. The calyx is five-parted; the corolla has five petals; the seed organ is woody and five-celled; the seeds are winged. The bark is the part used.

Tolu Balsam Tree (*Myroxylon Toluifera*, RICHARD.)

This tree, which belongs to the Jussieuan order, *Leguminosæ*, is a native of South America. The flowers are white; the calyx is short and bell-shaped; the corolla has five irregular petals, the upper one rounded



and the four others linear. It does not rank, as it is made to do by some, in the genus *Myrospermum*. The part used is a balsam procured by incision.

Peruvian Balsam Tree (*Myroxylon Peruvianum*,  
WILLD.)

This tree, which belongs to the Jussieuan order, *Leguminosæ*, is a native of tropical America, flowering from August till October. The flowers, which are white, are in erect clusters; the calyx is bell shaped and five toothed; the corolla has five petals, the upper one the largest and reflected; the seed organ has one cell and one seed. The part used is a balsam procured by boiling the twigs.

*Second Order, Digynia*<sup>1</sup>.

The flowers in this order have two pistils, as the name implies.

Clove Pink, or Gilly flower (*Dianthus Caryophyllus*,  
LINN.)

This perennial, which belongs to the Jussieuan order *Caryophylleæ*, is a native of the South of Europe, and much cultivated in gardens, flowering in July. The flowers, which are red, of various shades, grow solitary in branched panicles; the calyx has one striated leaf, with four scales at the base; the corolla has five clawed petals; the seed organ is cylindrical and one celled. The petals are the part used.

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<sup>1</sup> See note <sup>1</sup>, p. 12.

*Fourth Order, Pentagynia<sup>1</sup>.*



Wood Sorrel (*Oxalis acetosella*.)—*a*, Flower, showing the twelve stamens; *b*, the five pistils.

The flowers in this order have five pistils.

Wood Sorrel (*Oxalis acetosella*, LINN.)

This plant, which belongs to the Jussieuan order, *Geraniaceæ*, is a native of Britain, flowering in April and May. The calyx has five leaves; the corolla is bell shaped. The leaves are used.

<sup>1</sup> See Note <sup>2</sup>, Page 36.

ELEVENTH CLASS, DODECANDRIA<sup>1</sup>.

Agrimony (*Agrimonia Eupatoria*.)—*a*, Flower, showing the twelve stamens; *b*, the five pistils.

In this class such flowers are arranged as have from eleven to nineteen stamens inserted into the receptacle. It contains Hazel wort, Canella, Agrimony, and Spurge.

<sup>1</sup> From the Greek, δώδεκα, "twelve," and 'ανηρ, "male."

*First order, Monogynia*<sup>1</sup>.

The flowers in this order have only one pistil, as the name imports.

Hazel Wort (*Asarum Europæum*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Aristolochiæ*, is a native of Britain, flowering in May. The flowers, which are dusky purple, are almost concealed at the base of the leaves. The calyx is placed on the seed organ, is bell-shaped, three-cleft, and the division turned inwards; there is no corolla; the seed organ is inferior, egg-oblong, and six celled, with few seeds. The leaves are the part used.

White Canella Tree (*Canella alba*, LINN.)

This tree, which belongs to the Jussieuan order, *Meliaceæ*, is a native of the West Indies. The flowers, which are small and purple, grow in clusters at the top of the branches. The calyx is one leafed, three-lobed, and persistent; the corolla has five erect concave petals; the seed organ is superior, egg-oblong, and one celled; the fruit a glossy berry. The inner bark of the branches is the part used.

*Second order, Digynia*<sup>1</sup>.

The flowers in this order have two pistils, as the name imports.

Agrimony (*Agrimonia Eupatoria*.)

This perennial plant, which belongs to the Jussieuan order, *Rosaceæ*, is a native of Britain, flowering in June and July. The flowers, which are yellow, grow in a

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<sup>1</sup> See Note <sup>1</sup>, page 13.

tall bunch. The calyx is five-toothed; the corolla has five concave notched petals; the seed organ has a fleshy receptacle; the seeds are two, egg-oblong and flat. The whole herb is used.

*Third order, Trigynia*<sup>1</sup>.

The flowers in this order have three pistils.

Shop Spurge (*Euphorbium Officinarium*, LINN.)

This shrubby perennial plant, which belongs to the Jussieuan order, *Euphorbiaceæ*, is a native of Africa. The flowers, which are crimson, are sessile. The calyx is one-leaved, and four or five-toothed; the corolla has five petals fixed to the margin of the calyx; the seed organ has three berries and round seeds. The concrete juice of the plant is the part used.

Euphorbium has been frequently analysed, but with different results. M. Landet procured 23·3 per cent. of what appeared to be a gum, though this seems to have been nothing else than malate of lime and potass. M. Kastner denominates the whole drug a saline, waxy resin, inasmuch as he could find no gum in it. M. Brandes procured, by a very complete and careful analysis, 43·8 of resin; 13·7 of cerine; 1·2 of myricine; 4·8 of caoutchouc; 23·7 of the malates of lime and potass; 5·4 of water; 5·6 of ligin and impurities with a little gluten, and sulphate and phosphate of lime and potass. The resinous part, as described by M. Kastner, is dark reddish brown, which breaks into splinters brownish yellow and transparent. Euphorbin, which is the name recently given to this resinous principle, forms, according to Dr. Paris, 37 per cent. of the drug, and is the only part soluble in spirits of wine. The specific gravity of genuine euphorbium is 1·129.

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<sup>1</sup> See Note <sup>1</sup>, page 16.

TWELFTH CLASS, ICOSANDRIA<sup>1</sup>.



Pomegranate (*Punica Granatum*.) *a*, the flower; *b*, the calyx and stamens; *d*, another view of the same, showing the attachment of the stamens to the calyx; *c*, the fruit.

In this class are arranged such plants as have twenty or more stamens inserted into the calyx or corolla.

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<sup>1</sup> From the Greek 'εικοσι, "twenty," and 'ανηρ, "male."



*First order, Monogynia* <sup>1</sup>.

The flowers in this order have one pistil, as the name imports.

Peach Tree (*Amygdalus Persica*, LINN.)

This tree, which belongs to the Jussieuan order, *Rosaceæ*, is said to be a native of Persia, much cultivated in our gardens, flowering in March and April. The flowers, which are rose red, appear before the leaves. The calyx is inferior, and five-cleft; the corolla has five petals; the fruit is a drupe, with a deep furrow on one side, containing a hard-shelled nut. The leaves, which are narrow, pointed, and serrated, are the part used.

Almond Tree (*Amygdalus communis*.)

This tree, which belongs to the Jussieuan order, *Rosaceæ*, is a native of Syria and Barbary, cultivated as ornamental, flowering in March and April. The flowers, which are rose red or white, grow in short stalks. The calyx is tubular, with the lip five parted; the corollas have five oval convex petals; the fruit is a nut, covered with a sort of a leathery envelope. The kernel, which is the part used, is of two varieties—the sweet and the bitter.

Clove Tree (*Eugenia caryophyllata*, WILLD.)

This tree, which belongs to the Jussieuan order, *Myrtaceæ*, is a native of the Moluccas. The flowers, which are small, grow in bunches or panicles, of from nine to twenty-one blossoms. The calyx is superior,

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<sup>1</sup> See Note <sup>1</sup>, page 13.

four-parted, oblong, and woody ; the corolla has four roundish notched petals ; the fruit is a leathery two celled berry. The flower buds are the part used.

Allspice, or Pimenta Tree (*Myrtus Pimenta*, WILLD.)

This tree, which belongs to the Jussieuan order, *Myrtaceæ*, is a native of South America, flowering from June to August. The flowers, which are pale green, grow in panicles. The calyx is superior and four-cleft ; the corolla has four reflected petals ; the fruit is a two-celled berry, with many seeds. The fruit, gathered before it is ripe, and dried, is the part used.

Plum Tree (*Prunus domestica*, LINN.)

This tree, which belongs to the Jussieuan order, *Rosaceæ*, is a native of Asia and Greece, much cultivated in our gardens, and flowering in April and May. The flowers, which are white, appear before the leaves. The calyx is inferior erect, and five-parted ; the corolla has five inversely egg-oblong petals ; the fruit is a fleshy drupe, with a furrow on one side, enclosing a nut. The fruit, when dried, and termed *prunes*, is the part used.

Pomegranate Tree (*Punica Granatum*, LINN.)

This tree, which belongs to the Jussieuan order, *Myrtaceæ*, is a native of the tropics. The flowers, which are of a fine deep red, are sessile, and grow in threes or fours together. The calyx is superior, thick fleshy, red, and five-cleft ; the corolla has five wrinkled petals ; the fruit has a red succulent pulp, with many seeds. The rind of the fruit is the part used ; the bark of the root has similar properties.

*Fourth order, Pentagynia<sup>1</sup>.*

The flowers in this order have five pistils, as the name imports.

Quince Tree (*Pyrus Cydonia*, LINN.)

This tree, which belongs to the Jussieuan order, *Rosaceæ*, is a native of Europe, frequent in orchards, flowering in May. The flowers, which are rose red or white, are somewhat similar to those of the apple. The calyx is five-cleft, spreading, and persistent; the corolla has five concave, roundish petals; the fruit is similar in shape and size to an ordinary pear. The seeds are the part used.

*Fifth order, Polygynia<sup>2</sup>.*

The flower in this order has many pistils, as the name imports.

Avens (*Geum urbanum*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Rosaceæ*, is a native of Britain, flowering from May to August. The flowers, which are small and yellowish, grow solitary on foot stalks. The calyx is ten-cleft, five of the divisions large, and the alternate five small; the corolla has five spreading petals; the seeds are hairy, with purple awns. The root, which is dug in March, is the part used.

Dog Rose (*Rosa canina*, LINN.)

This shrub, which belongs to the Jussieuan order, *Rosaceæ*, is a native of Britain, flowering in June.

<sup>1</sup> See Note <sup>2</sup>, page 36.

<sup>2</sup> From the Greek πολυς, "many," and γυνή, "female."

The flowers, which are very pale red or white, grow in bundles, or solitary. The calyx is five-cleft, fleshy, and downy within on the edge; the corolla has usually five petals, inversely heart-shaped, the fruit is egg-oblong, smooth, red, containing about thirty seeds. It is the fruit or *hep* which is the part used.

Red Rose (*Rosa Gallica*, L. E. D.)

This shrub, which belongs to the Jussieuan order, *Rosaceæ*, is a native of the south of Europe, common in gardens, flowering in June and July. The flowers, which are of a deep crimson, are commonly double, though not so much as in *R. centifolia*. The flower-buds, gathered before they blow, are the part used.

Hundred-Leaved or Cabbage Rose (*Rosa centifolia*, LINN.)

This shrub, which belongs to the Jussieuan order, *Rosaceæ*, is a common garden plant, flowering in June. The calyx has the divisions somewhat winged and leafy; the corolla has a number of petals in the form termed double, of a pale red. The petals are the part used.

Tormentil (*Tormentilla erecta*).

This perennial plant, which belongs to the Jussieuan order, *Rosaceæ*, is a native of Britain, growing on heaths and in woods, and flowering in June and July. The flowers are small and solitary, and of a fine yellow, about half the size of those of cinquefoil. The calyx is three-cleft and hairy; the corolla has four petals with short claws, and inversely heart-shaped; the seeds are wrinkled. The root, which is woody, is the part employed.

THIRTEENTH CLASS, POLYANDRIA<sup>1</sup>.

White Poppy (*Papaver somniferum*); *a*, the seed-organ, showing the stamens attached to the receptacle; *b*, the fruit.

In this class are arranged such flowers as have many stamens, that is, from twenty to a hundred or more, inserted into the receptacle.

<sup>1</sup> From the Greek πολυς, "many," and 'ανηρ, "male."

*First Order, Monogynia.*<sup>1</sup>

The flowers in this order have only one pistil, as the name imports.

Corn Poppy, (*Papaver Rhæas*, LINN.)

This annual plant, which belongs to the Jussieuan order, *Papaveraceæ*, is a British plant, common in corn-fields, flowering in June and July. The calyx has two rough concave leaves, which fall off when the blossom expands : the corolla has four large petals of a bright scarlet colour ; the seed vessel is urn-shaped, one-celled, and contains many seeds. The petals are the part used.

White Poppy (*Papaver somniferum*, LINN.)

This annual plant, which belongs to the Jussieuan order *Papaveraceæ*, is a native of Asia, extensively cultivated, flowering, with us, in June and July. The flower is large, and usually white, but varieties of red and purple colour are not uncommon. The calyx has two large smooth leaves ; the corolla has four large wavy petals ; the seeds, sometimes called *maw seed*, are numerous, small, and greyish white. The seed-heads (not the seeds) are the part used, as well as the concrete juice or *opium*, procured from them by incision.

*Third Order, Trigynia*<sup>2</sup>.

The flowers in this order have three pistils, as the name imports.

Monk's-hood, or Wolf's-bane (*Aconitum Napellus*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Ranunculaceæ*, is a native of Europe, common in

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<sup>1</sup> See Note<sup>1</sup>, Page 13.

<sup>2</sup> See Note<sup>1</sup>, Page 16.



gardens, and flowering in May and June. The flowers, which are blue, grow in a tall spike. There is no calyx ; the corolla has five petals, the highest arched. The leaves are the parts used.

Paniced Wolf's-bane (*Aconitum paniculatum*, DEC.)

This perennial plant, which belongs to the Jussieuan order, *Ranunculaceæ*, is a native of Switzerland, flowering in July. The flowers, which grow not in a spike, but a large and lofty panicle, are blue. The uppermost petal is less beaked than in a *Napellus*. The leaves, gathered before the flowers appear, are the part used.

Staves acre (*Delphinium Staphisagria*, LINN.)

This biennial plant, which belongs to the Jussieuan order, *Ranunculaceæ*, is a native of the south of Europe, flowering from June to August. The flowers, which are of a fine blue or purple, grow in an open spike ; there is no calyx ; the corolla has five petals, the uppermost one projecting backwards into a long hollow spur ; the seeds are rough and triangular. The seeds are the part used.

#### *Fourth Order, Tetragynia.*<sup>1</sup>

The flowers in this order, have four pistils, as the name imports.

Winter's Bark Tree (*Wintera aromatica*, WILLD.)

This evergreen tree, which belongs to the Jussieuan order, *Magnolaceæ*, is a native of South America. The flowers grow two or more together, on white footstalks ; the calyx is three lobed ; the corolla has six or twelve erect petals ; the fruit is a light green berry, spotted

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<sup>1</sup> See Note<sup>1</sup>, Page 36.

with black, and containing black seeds. The bark, which is grey and wrinkled on the trunk, smooth and green on the branches, is the part used.

*Seventh Order, Polygynia.<sup>1</sup>*

The flowers in this order have many pistils, as the name imports.

Black Hellebore, or Christmas Rose (*Helleborus niger*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Ranunculaceæ*, is a native of Europe, flowering from December till March. There is no calyx, but floral leaves instead; the corolla has five large petals, at first white, then reddish, but becoming at length green; the seed organs, from four to eight, contain numerous oval seeds. The root, which is black without and whitish within, is the part used.

Fœtid Hellebore, or Bear's Foot (*Helleborus fœtidus*.)

This perennial plant, which belongs to the Jussieuan order, *Ranunculaceæ*, is a native of Britain, flowering in March and April. The flowers, which are pale green, tipped with purplish scarlet, are numerous and drooping. There is no calyx; the corolla has five concave persistent petals; the seed organs, three or more in number, become beaked pods. The leaves, which are palmate, with about nine leaflets, are the part used.

Neither of these two sorts of hellebore contains veratrine, as is stated in some books. The green sort (*Helleborus viridis*) is the hellebore of the ancients.

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<sup>1</sup> See Note<sup>2</sup>, Page 63.

FOURTEENTH CLASS, DIDYNAMIA.<sup>1</sup>

Foxglove, (*Digitalis purpurea*); *a*, part of a flower, showing the four stamens, two short and two long: *b*, the pistil.

In this class are arranged such flowers as have four stamens, two longer and two shorter, in a corolla of one petal.

<sup>1</sup> From the Greek, *dis*, "twice," *duo*, "two," and *νημα*, "filament."

*First Order, Gymnospermia*<sup>1</sup>.

Flowers in which the seeds are apparently not enveloped in a seed-vessel, but naked.

Hyssop (*Hyssopus officinalis*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Labiata*, is a native of Siberia and Austria, flowering from June to September. Its flowers, which are blue, grow in a leafy spike. The calyx is five-toothed and persistent; the corolla has its lower lip three-parted, and the upper lip notched at the tip; the four seeds at the bottom of the calyx. The whole plant is used.

Lavender (*Lavandula spica*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Labiata*, is a native of the South of Europe, common in gardens, flowering from June to September. The flowers, which are pale blue, grow in whirls in a close spike. The calyx is egg-oblong and slightly toothed; the corolla has the upper lip cloven and the lower lip three-cleft; the four seeds are at the bottom of the tube. The flowers are the part used.

White Horehound (*Marrubium vulgare*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Labiata*, is a native of Britain, flowering in July. The flowers, which are small and white, grow in crowded whirls. The calyx is salver-shaped, ten-streaked and ten-toothed; the corolla has the upper lip narrow and cloven, the under lip three-cleft; the four seeds are at the bottom of the calyx. The whole plant is used.

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<sup>1</sup> From the Greek, *γυμνος*, "naked," and *σπέρμα*, "seed."

Balm Plant (*Melissa officinalis*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Labiata*, is a native of the South of Europe, flowering from July to September. The flowers, which are yellowish white, grow in small bunches. The calyx is arid, tubular, the upper lip three-toothed, the lower lip two-toothed; the corolla, with the upper lip shorter and notched, the lower lip three-cleft; the four seeds are at the bottom of the calyx. The whole plant, cut just before flowering, is used.

Spear Mint (*Mentha viridis*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Labiata*, is a native of Britain, flowering in August. The flowers, which are purple, grow in whirled spikes. The calyx is cylindrical, furrowed, and five-toothed; the corolla is funnel-shaped and four-cleft; the seeds rarely ripen. The whole plant, cut just when the flowers appear, is used.

Peppermint (*Mentha piperita*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Labiata*, is a native of Britain, flowering in August and September. The flowers grow in whirled spikes. The calyx is five-cleft, with five blackish purple teeth; the corolla is rather unequal and with the broadest division notched. The whole plant, cut in dry weather, and when it is in flower, is used.

Pennyroyal (*Mentha pulegium*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Labiata*, is a native of Britain, flowering in September. The flowers, which are purple, grow in whirled spikes. The calyx is five-cleft, with fringed teeth; the corolla

is four-cleft and white at the base. The whole plant is used.

Wild Marjoram (*Origanum vulgare*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Labiata*, is a native of Britain, flowering from July to September. The flowers, which are purplish red, grow in panicles; the calyx is tubular and toothed; the corolla has the upper lip cloven and blunt, the under lip three-cleft and spreading. The whole plant is used, from which to distil an essential oil.

Sweet Marjoram (*Origanum Marjorana*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Labiata*, is a native of Portugal and Syria, flowering in July and August. The flowers, which are small and white, grow in compact spikes. The calyx has five acute teeth; the corolla is two-lipped, the upper lip erect, the lower lip, three-cleft. The whole plant, cut when it begins to flower, is used.

Germander (*Teucrium chamædrys*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Labiata*, is a native of Britain, flowering in July. The flowers, which are yellowish white, grow in spikes. The upper lip of the corolla is very short or wanting; the under lip cleft. The whole plant is used.

Cat Thyme (*Teucrium marum*, WILLD.)

This perennial plant, which belongs to the Jussieuan order, *Labiata*, is a native of the South of Europe, flowering from July to September. The flowers, which are pale purple, grow in a sort of cluster, on one side of the stem only. The corolla is two parted beyond the basis; the stamens are exerted. The whole plant, gathered when it is in flower, is used.



*Second Order, Angiospermia*<sup>1</sup>.

Flowers with the seeds not apparent but concealed in a seed organ, as the name imports.

Foxglove, (*Digitalis purpurea*, LINN.)

This biennial plant, which belongs to the Jussieuan order, *Scrofulariæ*, is a native of Britain, flowering from June till August. The flowers, which are large and purplish red, grow all on one side in a fine showy spike. The calyx is five-parted, the uppermost division the narrowest; the corolla has one large bell-shaped petal, spotted and hairy within, the upper lip slightly cleft; the seed organ has a double partition with many seeds. The leaves, gathered when the plant is in flower, are the part used.

M. Le Royer, by digesting the leaves of foxglove in ether, and treating the solution with hydrated oxide of lead, procured an alkaline substance which is called Digitaline: this is without smell, very bitter, very deliquescent, very soluble in water, alcohol, and ether, and is decomposed by heat. It is of a brown colour, pitchy, and capable of crystallisation, but not crystallised.

Figwort (*Scrofularia nodosa*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Scrofulariæ*, is a native of Britain, flowering in July. The flowers, which are brownish red, grow in erect bunches. The calyx is five-cleft; the corolla somewhat globular and slightly drooping; the seed organ egg oblong and two-celled. The leaves are the part used.

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<sup>1</sup> From the Greek, ἀγγεῖον, "covered," and σπέρμα, "seed."

FIFTEENTH CLASS, TETRADYNAMIA<sup>1</sup>.

Cuckoo Flower (*Cardamine pratensis*) ; *a*, the six stamens, four long and two short ; *b*, the pistil.

In this class are arranged such flowers as have six stamens, four being longer and two shorter ; the corolla having more petals than one.

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<sup>1</sup> From the Greek, τετρα, "four," δυο, "two," and 'νημα, "filament."

Dr. Darwin thinks that the plants of this class act chiefly by stimulating the capillary terminations of the veins, and thereby produce venous absorption. "In sea-scurvy," he says, "and petechial fever, the veins do not perfectly perform this office of absorption; and hence the vibices [petechiæ] are occasioned by blood stagnating at their extremities, or extravasated into the cellular membrane. And this class of vegetables, stimulating the veins to perform their natural absorption, without increasing the energy of the arterial action, prevents future petechiæ, and may assist the absorption of the blood already stagnated, as soon as its chemical change renders it proper for that operation." Besides the officinal plants, scurvy-grass, garden-cressēs, water-cresses, radishes, turnips, cabbages, &c., have, more or less, similar properties.

*First Order, Siliculosa*<sup>1</sup>.

The seed organ in this order is a short pod, as the name imports.

Horse Radish (*Cochlearia Armoracia*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Cruciferae*, is a native of Britain, flowering in June. The flowers, which are white, grow in clusters. The calyx has egg-oblong, concave, spreading leaves; the corolla with four petals twice the length of the calyx; the pod has two chambers and four seeds in each cell, but these are often infertile. The fresh root is the part used.

*Second Order, Siliquosa*<sup>2</sup>.

The seed organ in this order is a long round pod.

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<sup>1</sup> From the Latin, *Silicula*, "a little pod."

<sup>2</sup> From the Latin, *Siliqua*, "a pod."

Cuckoo Flower, or Ladies' Smoek (*Cardamine pratensis*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Cruciferae*, is a native of Britain, flowering in April and May. The flowers, which are pale purple, or rather purplish white, grow in bundles. The calyx is somewhat gaping and yellowish green; the corolla has the petals large and slightly notched; the seed pod opens when ripe with an elastic spring. The flowers are the part used.

White Mustard (*Sinapis alba*, LINN.)

This annual plant, which belongs to the Jussieuan order, *Cruciferae*, is a native of Britain, flowering in June. The flowers, which are yellow, grow in bunches. The calyx is green and spreading; the corolla has four petals with narrow erect claws; the seed pods are roundish, hairy, and ribbed, ending in a long beak. The seeds, which are smooth and yellowish white, are the part used.

Wild Mustard (*Sinapis nigra*, LINN.)

This annual plant, which belongs to the Jussieuan order, *Cruciferae*, is a native of Britain, flowering in June. The flowers, which are very small and yellow, grow in spikes. The calyx is coloured; the claws of the petals erect; the seed pods are parallel to the flower-stalk, and have a short square beak; the seeds are small and brownish black. The seeds are the part used.

SIXTEENTH CLASS, MONADELPHIA<sup>1</sup>.

Tamarind (*Tamarindus Indica*) ; *a*, the three stamens, united by their filaments into one body ; *b*, the pistil.

In this class are arranged such flowers as have all the stamens united at their base into one bundle or brotherhood, as the name imports.

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<sup>1</sup> From the Greek, *μονος* "one," and *ἄδελφος*, "brother."

*First Class, Triandria*<sup>1</sup>.

The flowers in this order have three stamens, as the name imports.

Tamarind Tree (*Tamarindus Indica*, WILLD.)

This tree which belongs to the Jussicuan order, *Leguminosæ*, is a native of the tropics, flowering in April and May. The flowers, which are yellowish, grow in loose bunches of five or six; the calyx is straw yellow and four-parted; the corolla has three egg-oblong, indented petals, plaited at the margin; the seed pods contain a pulpy substance (the part used) enveloping the seeds.

Tamarinds were analysed by Vauquelin, who found them to contain sugar, jelly, mucilage, citric acid, super-tartrate of potass, tartaric acid, and malic acid. Preserved tamarinds should be fresh and juicy, with an agreeably acid taste; they should not have a musty smell; the seeds should be soft and swollen; and the blade of a knife when immersed among them, should not thereby receive a coating of copper. The preserved tamarinds sent from the East Indies, are the best, but are rarely to be procured. They are called black tamarinds, and are characterised by being of a maroon brown colour, of a vinous smell, and of a pleasantly acid taste. In the West Indies, two methods are adopted in preparing them. The most common way is to throw hot sugar from the boilers upon the ripe pulp; but the preferable process is to put alternate layers of the fruit and of powdered sugar in a stone jar, by which means the taste is rendered more agreeable, while the colour is better preserved.

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<sup>1</sup> See Note <sup>1</sup>, Page 18.



*Eighth order, Polyandria*<sup>2</sup>.

The flowers in this order have many stamens, (that is, above twenty,) as the name imports.

Marsh Mallow (*Althæa officinalis*, WILLD.)

This perennial plant, which belongs to the Jussieuan order, *Malvaceæ*, is a native of Britain, flowering in June and July. The flowers, which are of a pale rose colour, grow in short thick panicles. The calyx is double, the outer, six or nine-cleft, with from seven to twelve unequal divisions; the inner, five-cleft; the corolla has five heart-shaped petals united at their base; the seed organ is wheel-shaped. The roots, which are dug up in autumn, are the part used.

Common Mallow (*Malva sylvestris*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Malvaceæ*, is a native of Britain, flowering all the summer. The flowers, which are large and bright reddish purple, grow on slender hairy footstalks. The hairy calyx is double, the outer having three leaves, the inner five; the corolla has five heart-shaped petals; the seed organ is wheel-shaped. The whole plant is used.

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<sup>1</sup> See Note <sup>1</sup>, Page 65.

SEVENTEENTH CLASS, DIADELPHIA<sup>1</sup>.



Cowhage (*Dolichos pruriens*); *a*, the flower; *b*, the ten stamens and pistils which lie folded up in the keel-like petals of the flower. The stamens are divided into two bodies, of which, *nine* form the lower, *c*, and *one*, the upper, *d*; *e*, the pistil.

In this class are arranged such flowers as have the stamens united at their base into two bundles or brotherhoods, as the name imports.

<sup>1</sup> From the Greek δις, "twice," and ἀδελφος, "brother."

*Third order, Octandria*<sup>1</sup>.

The flowers in this order have eight stamens, as the name imports.

Seneka Plant (*Polygala Senega*, WILLD.)

This perennial plant, which belongs to the Jussieuan order, *Pedicularæ*, is a native of North America, flowering in June. The flowers, which are small and white, grow in loose spikes. The calyx is three-parted and persistent; the corolla is irregular, and somewhat in form of a pea blossom; the fruit is two-celled, containing several small seeds. The root is the part used.

*Fourth order, Decandria*<sup>2</sup>.

The flowers in this order have ten stamens, as the name imports.

Tragacanth Plant (*Astragalus verus*, OLLIVIER.)

This shrub, which belongs to the Jussieuan order, *Leguminosæ*, is a native of the north of Persia, flowering in July and August. The flowers, which are small and yellow, have cottony flower scales. The calyx is five-toothed; the corolla is longer than the calyx; the seed pod is two-celled. The part used is a gum which exudes from the plant. It is proper to remark, that the species whence this gum is procured is still somewhat doubtful.

Cowhage (*Dolichos pruriens*, LINN.)

This perennial climbing plant, which belongs to the Jussieuan order, *Leguminosæ*, is a native of the tropics, flowering from September to March. The flowers, which are blood red, grow in drooping spikes. The corolla has two oblong scales at the base of the stand-

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<sup>1</sup> See note <sup>1</sup>, page 43.

<sup>2</sup> See note <sup>1</sup>, page 50.

ard; the fruit is a leathery pod, in form of the *Italic s*, containing from three to five seeds. The part used are the short brown bristly hairs which cover the pods.

Cabbage Tree (*Gcoffroya inermis*, WILLD.)

This tree, which belongs to the Jussieuan order, *Leguminosæ*, is a native of the West Indies. The flowers, which are of a pale rose colour, grow in elusters on branched spikes. The calyx is bell-shaped, five-parted, and five-toothed; the standard of the corolla is notched, the wings shorter, the keel blunt, the fruit is a drupe, pulpy, and containing a hard seed. The bark, which is grey without and black within, is the part used.

Liquorice Plant (*Glycyrrhiza glabra*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Leguminosæ*, is a native of the south of Europe and Asia, flowering in August. The flowers, which are purplish blue, grow in sparse spikes. The calyx has the lower lip entire, the upper lip three-lobed; the corolla has the standard egg-oblong and erect, the wings blunt, and the keel shorter; the seed pods are flattish, smooth, with two or three seeds. The root, which when three years old is dug up in November, is the part used.

Kino Tree (*Pterocarpus erinacea*, LAMARCK.)

This tree, which belongs to the Jussieuan order, *Leguminosæ*, is a native of Africa. The flowers grow on foot-stalks. The calyx is bell-shaped, downy, and slightly five-toothed; the fruit is a downy pod, containing one seed. The inspissated juice, called *kino*, is the part used.

It is but right to add, that other plants yield a sort of kino. The Edinburgh College gives *Eucalyptus resinifera* as the true plant; the Dublin College gives

the *Rutea frondosa*; Dr. A. Duncan also mentions *Cocoloba urifera*; and Dr. A. T. Thomson, *Nauclea Gambia*.

“There is,” says Dr. Paris, “very considerable obscurity with regard to the history and chemical constitution of this substance; three varieties are met with in the shops, viz. 1. African Kino, which bears the highest price, and is of a reddish brown colour, and has a bitterish astringent taste. 2. Botany Bay Kino is in more solid masses than the former species, is less brittle, and, with its astringency, has a disagreeable sweetish taste. 3. Jamaica Kino, the one most commonly met with, is in small fragments, of a colour nearly approaching to black, and has an astringent and slightly bitter taste. There is also a fourth variety mentioned, viz. the East India, or Amboyna, but this does not appear to differ from the African variety.”

Red Saunders Tree (*Pterocarpus santalinus*, WILLD.)

This tree, which belongs to the Jussieuan order, *Leguminosæ*, is a native of India. The flowers, which are yellow, grow in spikes, and have no flower scales; the calyx is five-toothed and brown; the corolla has the standard erect, curled, and waved, as are also the wings and keel; the pod is flattish, smooth, and contains one flattish seed. The wood, which is so heavy as to sink in water, is the part used.

Broom (*Spartium Scoparium*, LINN.)

This shrub, which belongs to the Jussieuan order, *Leguminosæ*, is a native of Britain, flowering in May and June. The flowers, which are large and yellow, grow on nodding foot stalks. The calyx is two-lipped and gaping; the corolla has a large spreading standard; the pod is very flat and thin; the seeds small and shining. The tops of the twigs are the part used.

EIGHTEENTH CLASS, POLYADELPHIA<sup>1</sup>



Lemon (*Citrus medicus*); *a*, Flower, showing the division of the stamens into three bundles; *b*, section of the fruit.

In this class are arranged such flowers as have the stamens united at their base into three or more bundles or brotherhoods, as the name imports.

*First Order, Icosandria.*<sup>1</sup>

The flowers in this order have from twelve to twenty stamens, as the name imports.

<sup>1</sup> From the Greek πολυς, "many," and αδελφος, "brother."

<sup>2</sup> See note <sup>1</sup>, page 60.



Lemon Tree (*Citrus medica*, LINN.)

This evergreen tree, which belongs to the Jussieuan order, *Aurantiaë*, is a native of Asia, cultivated in the south of Europe. The flowers, which are large and purplish white, grow on the smaller branches. The calyx is saucer-formed, five-cleft, with pointed teeth ; the corolla with five petals oblong and concave ; the fruit is large, and egg oblong. The juice of the fruit, and the essential oil of its rind, are the parts used.

According to Dr. Darwin, lemon juice strengthens digestion. Absorption from the mucons membrane is increased by applying to its surface the austere acids, such as lemon juice, crab juice, and sloes. When these are taken into the mouth, they immediately thicken, and at the same time lessen the quantity of the saliva ; which last circumstance cannot be owing to their coagulating the saliva, but to their increasing the absorption of the thinner parts of it. So alum, applied to the tip of the tongue, does not stop in its action there ; but, independent of its suffusion, it induces cohesion and corrugation over the whole mouth.

Orange Tree (*Citrus Aurantium*, LINN.)

This evergreen tree, which belongs to the Jussieuan order, *Aurantiaë*, is a native of India and Persia, and much cultivated. The flowers, which are large and white, grow on simple and branched footstalks. The calyx and corolla are very similar to those of the lemon tree ; the fruit is globular and well known. The rind and pulp of the fruit, and the dried unripe fruit, are used.

NINETEENTH CLASS, SYNGENESIA.<sup>1</sup>

Chamomile (*Anthemis nobilis*); *a*, florets of the circumference; *b*, florets of the disk; *c*, the receptacle, showing the insertion of the two kinds of florets; *d*, floret of the circumference, consisting of a single strap-shaped petal; *e*, floret of the disk; *f*, the five stamens, adhering by their anthers together, forming a tube, through which the single pistil, *g*, passes.

In this class are arranged such flowers as are composite; that is, such as are composed of florets, in each of which all the anthers are united into a tube, while their filaments are not united.

<sup>1</sup> From the Greek *συν*, "together," and *γενεσις*, "origin."

*First Order, Polygamia Æqualis.*

Flowers with all the florets equal, as the name expresses.

*Burdock (Arctium Lappa, LINN.)*

This biennial plant, which belongs to the Jussieuan order, *Carduaceæ*, is a native of Britain, flowering in July and August. The flowers, which are purple, grow in panicles. The calyx is globular, the scales composing it ending in inverted hooks; the florets of the corolla are uniform, five-cleft, and all fertile; the receptacle is chaffy, as are the seeds. The leaves, which are very large, the roots, and the seeds, are all used.

*Lettuce (Lactuca sativa, LINN.)*

This annual plant, which belongs to the Jussieuan order, *Cichoraceæ*, is very common in gardens. The flowers, which are yellow, grow in bundles; the calyx is imbricated, with the leaves membranous at the edge; the receptacle is naked; the seed is white, with simple down. The inspissated juice, called *Lactucarium*, is the part used.

“It has long been suspected,” says Professor Chapman, “that all the lactescent plants have more or less of the narcotic principle, and, as regards lettuce, the point was well ascertained even in the earliest times. Among the fables of antiquity, we read of Venus, after the death of Adonis, throwing herself on a bed of lettuces to lull her grief. Allusions to its anodyne qualities frequently occur in the medical writings of antiquity; and we are expressly told that Galen, in the decline of life, suffering much from morbid vigilance, had recourse to the eating of lettuce in the evening, which he found “a sovereign remedy.”

Professor Coxe proved that there is no essential dif-

ference between opium and the lactucarium, as regards medicinal effects, sensible qualities, or chemical composition.

Cut-leaved Lettuce (*Lactuca virosa*, LINN.)

This biennial plant, which belongs to the Jussieuan order, *Cichoraceæ*, is a native of Britain, flowering in July and August. The flowers are numerous, and of a primrose-yellow colour; the calyx is formed of spear-shaped scales; the florets are very slightly longer than the calyx; the seeds are black. The expressed juice of the leaves is the part used.

Dandelion (*Leontodon Taraxacum*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Cichoraceæ*, is a native of Britain, flowering nearly the whole year in the south of England. The flowers, which are large and golden yellow, grow on a smooth hollow flower-stalk. The calyx has numerous smooth leaves, bent at the tip; the florets are toothed; the receptacle is roundish and punctured; the seeds have a rayed down on a footstalk. The fresh root is the part used.

*Second Order, Polygamia superflua.*

The flowers in this order have no stamens in the florets of the circumference, which Linnæus therefore termed superfluous,—a very questionable epithet.

Chamomile (*Anthemis nobilis*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Corymbiferaæ*, is a native of Britain, flowering in August and September. The calyx is hairy, and has broad membranaceous edges; the florets of the disk are yellow—of the circumference, white, and more than five in number; the receptacle is chaffy; the seed is downless. There are two varieties, the single and the

double flowered, the single being preferable. The dried flowers are the parts used.

Pellitory of Spain (*Anthemis Pyrethrum*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Corymbiferae*, is a native of Northern Africa and the south of Europe, flowering in June and July. The flowers, which are large, are very similar to those of chamomile. The root, which is the part used, is long, tapering about the thickness of the finger, with a thick brown bark, and yellow within.

Mountain Sneeze Wort (*Arnica montana*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Corymbiferae*, is a native of Europe, flowering in July. The flowers are of a dark coppery yellowish or brownish green. The calyx has fifteen or sixteen hairy scales ; the florets of the circumference are about fourteen ; those of the disk have a five parted edge ; the receptacle is naked ; the seed down is simple and rusty. All parts of the plant are used.

Worm Seed Plant (*Artemisia Santonica*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Corymbiferae*, is a native of Tartary, flowering in September. The flowers grow in paniced clusters. The calyx is imbricated ; the corolla rayless ; the receptacle naked ; the seeds without down. The seeds were the part formerly used, but now, the whole plant is recommended.

Worm Wood (*Artemisia Absinthium*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Corymbiferae*, is a native of Britain, flowering in August. The whole plant is hoary white. The flowers

are small brownish yellow and almost rayless ; the calyx has roundish converging scales ; the receptacle has short silky hairs. The whole plant is used, but chiefly the seeds.

Moxa Plant (*Artemisia Chinensis*, DUBL.)

This shrubby perennial, which belongs to the Jussieuan order, *Corymbiferæ*, is a native of China. The flowers grow in simple clusters. The leaves and stems, which are the part used for procuring *Moxa*, are cottony and fibrous.

Southern Wood (*Artemisia Abrotanum*, LINN.)

This perennial shrub, which belongs to the Jussieuan order, *Corymbiferæ*, is a native of the south of Europe, common in gardens. The flowers, which are small and yellowish, grow in bunches. The whole plant is used.

Sea Wormwood (*Artemisia maritima*, WILLD.)

This perennial plant, which belongs to the Jussieuan order, *Corymbiferæ*, is a native of Britain, flowering in August and September. The flowers, which are brown, grow in drooping clusters. The receptacle is naked. The whole plant is used.

Elecampane (*Inula Helenium*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Corymbiferæ*, is a native of Britain, flowering in July and August. The flowers are very large and of a golden yellow colour. The calyx is composed of scales, the outer ones large and cottony, the inner ones narrow and chaffy ; the anthers have two bristles at the base ; the receptacle is naked, netted, and papillous ; the seeds are smooth. The roots, dug up in autumn, are the part used.



Golden Rod (*Solidago Virg-aurea*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Corymbiferæ*, is a native of Britain, flowering in September. The flowers, which are of a fine yellow colour, grow in spiked bundles. The whole plant is used.

Tansy (*Tanacetum Vulgare*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Corymbiferæ*, is a native of Britain, flowering in July and August. The flowers, which are yellow, grow in umbelled bundles. The calyx is imbricated; the corolla has its rays indistinct and five cleft; the receptacle is naked; the seeds are small and ribbed. The leaves and flowers are the parts used.

Coltsfoot (*Tussilago Farfara*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Corymbiferæ*, is a native of Britain, flowering in March and April. The flowers, which are of a fine golden yellow, appear before the leaves and droop before blowing. The calyx is composed of equal purplish scales; the florets of the circumference are twice the length of those of the disk; the receptacle is naked and pitted; the seeds are smooth, with a simple down. The flowers and the leaves are the parts used.

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The next three orders contain no officinal plants, but the sun flower is an example of the third order; the marygold of the fourth order; and the globe thistle of the fifth order.

TWENTIETH CLASS, GYNANDRIA<sup>1</sup>.



Snake Root (*Aristolochia serpentaria*); *a*, the flower; *b*, section of the same, showing the situation of the stamen and pistils, *c*; *d*, the stamens attached to the pistils, *e*.

In this class are arranged such flowers as have the stamens and pistils united; that is, the stamens are inserted upon the pistil, as the name is meant to import.

<sup>1</sup> From the Greek *γυνή*, "female," and *ἄνδρ*, "male."

*Sixth order, Hexandria*<sup>1</sup>.

The flowers in this order have six stamens, as the name imports.

Snake Root, or Birthwort (*Aristolochia Serpentaria*,  
LINN.)

This perennial plant, which belongs to the Jussieuan order, *Aristolochiæ*, is a native of North America, flowering in May and June. The flowers, which are brownish purple, grow upon bending foot stalks, from the joints near the root. There is no calyx; the corolla has one petal, with a triangular lip, and bulging out at the base; the seed vessel is inferior, with six cells and many seeds. The root, which consists of bundles of yellow fibres, is the part used.

According to M. Chevalier, snake root contains volatile oil, resin, gum, starch, a yellow bitter principle, malic and phosphoric acids; and he thinks that the active principle has much analogy with the bitter principle got from *Quassia amara*, by Dr. T. Thomson, and the principle obtained from Bryony root (*Bryonia alba*) and from Colocynth, (*Cucumis colocynthis*) by Vauquelin. According to T. Bucholz, its components are, volatile oil, 5; yellowish gum resin,  $28\frac{1}{2}$ ; extractive saponaceous matter, 17; gummy extract, 181; woody fibre, 624; water,  $144\frac{1}{2}=1,000$ . Bucholz concludes that the characteristic ingredients are the volatile oil, (which, however, exists in very small quantities) and a soft resin, which has many of the properties of an oil, and is also bitter, as is still more remarkably the saponaceous extractive.

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<sup>1</sup> See Note <sup>1</sup>, page 37.

TWENTY-FIRST CLASS, MONŒCIA<sup>1</sup>.



Colocynth (*Cucumis Colocynthus*); *a*, the male flower, containing stamens; *b*, the female flower, containing pistils.

In this class are arranged such flowers as have only one sex, some being with pistils only, and some with stamens only, on the same plant, as the name is meant to express.

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<sup>1</sup> From the Greek *μνος*, "one," and *οικος*, "a house."

*Fourth order, Tetrandria*<sup>1</sup>.

The male flowers in this order have four stamens, as the name imports.

Mulberry Tree (*Moras nigra*, LINN.)

This tree, which belongs to the Jussieuan order, *Urticeæ*, is a native of Persia, flowering in June, and ripening its fruit in September. The male flowers grow in close catkins, the calyx being four-leaved, and enclosing the four stamens; the female flowers have also a four-leaved calyx, enclosing two pistils; the fruit is a compound succulent berry. The fruit is the part used.

*Seventh order, Polyandria*<sup>2</sup>.

The male flowers in this order have many stamens, as the name imports.

Cuckoo Pint (*Arum maculatum*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Aroïdeæ*, is a native of Britain, flowering in May and July. The calyx is a convoluted sheath; the flower is club shaped and obtuse. The root, which is tuberous, is the part used.

Dyers' Oak (*Quercus infectoria*, OLLIVIER.)

This tree, or rather shrub, which belongs to the Jussieuan order, *Amentaceæ*, is a native of Asia, flowering in May and June. The leaves are oblong, sinuated, toothed, and smooth on each side. There are no petals. The acorn is longish and smooth, its cup is downy and scaly. The part used are galls, formed by

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<sup>1</sup> See Note <sup>1</sup>, page 22.

<sup>2</sup> See Note <sup>2</sup>, page 22.

a gall fly (*Cynips Quercifolii*, LINN; *Diplolepis Gallæ tinctoriæ*, GEOFFR.)<sup>1</sup>

White Oak (*Quercus pedunculata*, MICHAUX.)

This tree, which belongs to the Jussieuan order, *Amentaceæ*, is a native of Britain, flowering in April and May. The flowers are without petals. The male flowers are yellow, on a many flowered, lax, catkin; the female flowers are on long foot stalks, and only three together. There are ten stamens and three pistils. The foot stalks, which bear the acorns, are two or three inches long, whereas in the common oak (*Quercus Robur*) there are no foot stalks. The bark, which is the part used, is taken from the smaller branches.

*Eighth order, Monadelphia*<sup>2</sup>.

In this order the male flowers have the stamens united in one bundle or brotherhood, as the name imports.

Cascarilla Tree (*Croton Elateria*, WILLD.)

This tree, which belongs to the Jussieuan order, *Euphorbiaceæ*, is a native of the West India islands. The pale flowers have the calyx cylindrical, five-toothed, and the corolla five petaled, with ten stamens. The female flowers have the calyx many leaved, no corolla, three pistils, or three celled seed organ, and one shining seed. The bark is the part used.

Croton Oil Tree (*Croton Tiglium*, RUMPHIUS.)

This tree, which belongs to the Jussieuan order,

<sup>1</sup> This insect is noticed in a subsequent page, under Medical Zoology.

<sup>2</sup> See Note <sup>1</sup>, page 77.



*Euphorbiaceæ*, is a native of India. The flowers grow in clusters, and are somewhat similar to those of the cascarilla tree. The seeds, called *Molucca grains*, are the size of a horse bean, flattish, with four equidistant ridges. The oil expressed from the bruised seed is the part used.

Colocynth Plant, or Bitter Cucumber (*Cucumis Colocynthus*, WILLD.)

This annual plant, which belongs to the Jussieuan order, *Cucurbitaceæ*, is a native of Africa, flowering from May till August. The male flowers have the calyx five-toothed; the corolla five-parted; the stamens three. The female flowers have the calyx and corolla like the male; the pistil is three-cleft. The fruit is the size of a small orange, and of a yellow colour. It is the fruit which is used after it has been peeled and dried.

Elaterium Plant, or Squirting Cucumber (*Momordica Elaterium*, WILLD.)

This perennial plant, which belongs to the Jussieuan order, *Cucurbitaceæ*, is a native of the south of Europe, flowering in June and July. The male flowers have the calyx five-cleft, the corolla five-parted, and five stamens. The female flowers have the calyx and corolla similar, the pistil being three-cleft. The fruit, whose inspissated juice is the part used, is like a small oval cucumber, greyish and prickly. When ripe, it squirts out the seeds to a distance.

Norway Spruce Fir, or Burgundy Pitch Tree, (*Pinus Abies*, LINN.)

This evergreen tree, which belongs to the Jussieuan order, *Coniferaæ*, is a native of Europe and Northern

Asia, flowering in April. Both the male and female flowers are purplish; the cones are pendent, long, and purplish when ripe,—their scales being in eight spiral rows. The parts used are a resin which exudes spontaneously, and Burgundy pitch procured by incision.

Balm of Gilead Tree (*Pinus balsamea*, LAMBERT.)

This evergreen tree, which belongs to the Jussieuan order, *Coniferae*, is a native of North America, flowering in May. The leaves grow comb-like, in a double row. The cones do not hang but stand upright on the branches, and are glossy purplish black. The part used is the Canada balsam, procured by incision.

Larch (*Pinus larix*, LAMBERT.)

This tree, which belongs to the Jussieuan order, *Coniferae*, is a native of Europe, flowering in April. The male flowers are small, the female flowers large and reddish purple. The part used is Venice turpentine, procured by boring.

Scotch Fir (*Pinus sylvestris*, LINN.)

This evergreen tree, which belongs to the Jussieuan order, *Coniferae*, is a native of Scotland and the north of Europe. The flowers are yellowish white; the male flowers in a close spike; the female flowers usually in threes round the branches. The cone is small and grey, with two blackish seeds within each scale. Turpentine, yellow resin, and tar, are procured from the tree.

Castor Oil Plant, or Palma Christi (*Ricinus communis*, LINN.)

This annual plant, which belongs to the Jussieuan order, *Euphorbiaceae*, is a native of the tropics. The male flowers have a calyx of five leaves, pointed and purplish, with many stamens. The female flowers

have their calyx reddish and three-cleft, with three pistils. The seeds, which are contained in a nut, are the part used.

TWENTY-SECOND CLASS, DIŒCIA<sup>1</sup>.



Hop (*Humulus lupulus*); a, a branch of the male plant; b, the male flower, bearing stamens only; c, another; d, a hop, or catkin of flowers, from the female plant; e, a single scale of ditto; with the pistils and germ at its base, f, the same, enlarged.

<sup>1</sup> From the Greek δις, "twice," and οἶκος, "a house."

Flowers with pistils only, or with stamens only, on separate plants of the same species, as the name is intended to express.

*Second Order, Diandria*<sup>1</sup>.

The male flowers in this order have two stamens, as the name imports.

Craek Willow (*Salix fragilis*, SMITH.)

This tree, which belongs to the Jussieuan order, *Amentaceæ*, is a native of Britain, flowering in May and June. The leaves are smooth and serrated. The male catkin is egg-oblong, with downy scales and smooth stamens. The female catkin has flowers with two erect pistils, eleft at the summit. The seed organ is egg-oblong, with numerous small seeds. The bark, dried in an oven, is the part used.

White Willow (*Salix alba*, SMITH.)

This tree, which belongs to the Jussieuan order, *Amentaceæ*, is a native of Britain, flowering in April and May. The leaves are downy above and silky beneath, the young ones silvery. The catkins are long and slender ; the stamens yellow ; the summits of the pistils thick and eleft. The bark, dried, is the part used.

Sallow (*Salix caprea*, SMITH.)

This tree, which belongs to the Jussieuan order, *Amentaceæ*, is a native of Britain, flowering in April. The leaves are dark green above and cottony and veined beneath. The catkins are egg-oblong and very hairy ; the stamens are yellow ; the summits of the pistils are seldom eleft. The bark is the part used.

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<sup>1</sup> See note <sup>1</sup>, p. 14.

*Fifth Order, Pentandria*<sup>1</sup>.

The male flowers in this order have five stamens, as the name imports.

Hop (*Humulus lupulus*, LINN.)

This climbing perennial plant, which belongs to the Jussieuan order, *Urticeæ*, is a native of Britain, extensively cultivated, flowering in July. The flowers are furnished with flower scales. The male flowers, which are whitish and grow in panicles, have a five-leaved calyx and no corolla. The female flowers have a one-leaved, entire, spreading calyx and no corolla. The fruit cones (*strobili*) are egg-oblong and pendulous. It is the cones, after drying in a kiln, which are used.

Chian Turpentine Tree (*Pistacia Terebinthus*, WILLD.)

This tree, which belongs to the Jussieuan order, *Terebinthaceæ*, is a native of the south of Europe and the north of Africa. The male and female flowers grow on different trees. The male flowers have the calyx five cleft, with four or five short stamens and no corolla. The female flowers have the calyx three-cleft, with two or three pistils and no corolla. The fruit is somewhat egg oblong, reddish, and smooth. The part used is a turpentine procured by incision.

Mastic or Lentisc Tree (*Pistacia Lentiscus*, WILLD.)

This tree, which belongs to the Jussieuan order, *Terebinthaceæ*, is a native of Chios, flowering in May. The flowers are similar to those of the Chian turpentine tree. The fruit is a drupe. The part used is a gum called *mastic*, procured by incision.

*Sixth Order, Hexandria*<sup>2</sup>.

The male flowers in this order have six stamens, as the name imports.

<sup>1</sup> See note <sup>1</sup>, p. 16.

<sup>2</sup> See note <sup>1</sup>, p. 13.

Sarsaparilla Plant (*Smilax Sarsaparilla*, WILLD.)

This perennial plant, which belongs to the Jussieuan order, *Smilacæ*, is a native of America, flowering in July and August. The male flowers have a six-leaved, bell-shaped calyx, and no corolla. The female flowers have a similar calyx, no corolla, and three pistils. The fruit is a three-celled berry, with two seeds. The root, which grows straight in stalks, as thick as a writing quill, is the part used.

"The reputation of sarsaparilla has been" says Professor Chapman, "exceedingly fluctuating. When originally introduced into the materia medica, it was thought a sovereign cure for the venereal disease : but in a short time it lost nearly all reputation. By Sir William Fordyce and Mr. Hunter, its use was once more revived, as one of the best remedies in the sequelæ of syphilis, whether proceeding from a remnant of contamination, or the abuse of mercury. It again sunk into discredit, at least as an anti-venereal medicine, in which it continued till the late notions relative to syphilis arose, on which occasion it was brought forward with, perhaps, a higher appreciation of its power than it had ever before received. By every description of practitioners it is prescribed in venereal, scrofulous, and mercurial sores of an ill condition ; in cutaneous affections ; in ordinary and venereal rheumatism ; sometimes in the declining stages of gout, when the joints are left rigid and swollen ; and to restrain the undue action of mercury, or correct its consequences. That it displays the properties of its associate articles, and oftener, in a higher degree, seems to be the prevalent opinion at the present moment. Like guaiacum, it sometimes proves diuretic, and may be used accordingly."



*Thirteenth Order, Monadelphia<sup>1</sup>.*

The male flowers in this order have the stamens united at the base in one bundle or brotherhood, as the name imports.

*Savin Tree (Juniperus sabina, WILLD.)*

This evergreen shrub, which belongs to the Jussieuan order, *Coniferae*, is a native of the south of Europe, common in gardens, flowering in May and June. The male flowers have an egg-shaped catkin, each flower with a broad scale instead of a calyx. The female flowers have a calyx of three persistent scales. The fruit is a fleshy berry of a purplish black colour, containing three seeds. The leaves and tops of the twigs are the parts used.

*Juniper Shrub (Juniperus communis, LINN.)*

This evergreen shrub, which belongs to the Jussieuan order, *Coniferae*, is a native of Britain, flowering in May. The male flowers are at first yellow and afterwards brownish; the female are yellowish green. The berry is dark bluish purple when ripe. The berries are the part used.

*Nutmeg Tree (Myristica moschata, RUMPHIUS.)*

This tree, which belongs to the Jussieuan order, *Myristicæ*, is a native of tropical Asia. The male flowers have a bell-shaped three-cleft calyx, no corolla, and from six to ten stamens whose anthers are united. The female flowers have two pistils, or rather the summits of pistils; the fruit is a drupe, with an arillus and one seed. The arillus forms what is termed *mace*, the stone of the drupe, *nutmeg*, which are the parts used.

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<sup>1</sup> See note <sup>1</sup>, p. 14.

TWENTY-THIRD CLASS, POLYGAMIA<sup>1</sup>.



Fig, (*Ficus Carica*); *a*, section of the fruit, bearing in its inner side, male, female, and hermaphrodite flowers; *b*, male flower; *c*, female flower.

In this class are arranged such plants as have both stamens and pistils; and also only one of these, both on the same plant, and on separate plants of the same species.

<sup>1</sup> From the Greek, *πολυς*, "many," and *γαμος*, "a marriage."

*First Order, Monœcia*<sup>1</sup>.

The hermaphrodite flowers in this order are united, accompanied by male or female, or both, all on one plant.

Catechu Tree (*Acacia Catechu*, WILLD.)

This tree, which belongs to the Jussieuan order, *Leguminosæ*, is a native of India, flowering in June. There are both hermaphrodite and male flowers. The calyx in both is tubular, hairy, and five-toothed; the corolla in both is five-cleft or five-petaled, with numerous crowded stamens; the fruit is a thin, smooth, brown pod, containing six or eight seeds. The part used is an extract from the interior wood.

Egyptian Thorn, or Gum-Arabic Tree (*Acacia vera*, WILLD.)

This tree, which belongs to the Jussieuan order, *Leguminosæ*, is a native of Africa, flowering in July. The flowers, which are yellow, grow in globular heads, or roundish spikes; the calyx is small and bell-shaped; the corolla is five-parted; the fruit is a pod three or four inches long. The part used is a natural exudation from the bark, termed *Gum Arabic*, which is collected in December.

Gamboge Tree (*Stalagmites Cambogioides*, MURRAY.)

This tree, which belongs to the Jussieuan order. *Guttiferae*, is a native of tropical Asia. The flowers have a four-leaved calyx; a four-petalled corolla; thirty stamens inserted into a four-angled fleshy receptacle; the fruit is a smooth, rosy-white berry. The part used is a gum called *gamboge*, procured by breaking the young shoots and leaves.

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<sup>1</sup> See note <sup>1</sup>, page 94.

White Hellebore (*Veratrum album*, LINN.)

This perennial plant, which belongs to the Jussieuan order, *Colchicaceæ*, is a native of Europe, flowering in July. The flowers, which grow in long spikes, are pale green; there is no calyx; the corolla has six petals, three of which, in the bud, inclose the other three; stamens, six; pistils, three; seed-organs three, and many-sided. The root, which is the part used, is spindle-shaped and fleshy, with strong fibres.

*Second Order, Diœcia*<sup>1</sup>.

The hermaphrodite and male flowers in this order are on separate plants, as the name is meant to import.

Fig Tree (*Ficus Carica*, LINN.)

This tree, which belongs to the Jussieuan order, *Urticææ*, is a native of Asia, not uncommon in gardens, and flowering in June and July. The male flowers have the calyx three-parted, and three stamens; the female flowers have the calyx five-parted, and one pistil: neither have a corolla. The fruit, which is the part used, in a dried state, is pear-shaped and fleshy.

Flowering, or Manna, Ash Tree (*Fraxinus Ornus*, LINN.)

This tree, which belongs to the Jussieuan order, *Jasmineæ*, is a native of the south of Europe, flowering in May and June. The flowers, which are white, grow in panicles; the calyx, when distinct, is four-parted; the corolla the same; stamens, two; one pistil; seed-organ with one seed. The part used is the gum called *manna*, which exudes spontaneously from the stem. Two other species of ash, the *F. ro-tundifolia*, and the *F. excelsior*, also yield manna.

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<sup>1</sup> See note <sup>1</sup>, page 99.

TWENTY-FOURTH CLASS, CRYPTOGAMIA<sup>1</sup>.



BLADDER-WRACK, (*Fucus vesiculosus*); *a*, vesicles, containing the spores; *b*, section of the same.

In this class are arranged such plants as have no flowers, or sexual distinctions, so far as can be discovered.

*First Order, Ferns (Filices).*

In this order the reproductive particles, or spores, are contained in scaly capsules on the leaves.

<sup>1</sup> From the Greek κρυπτος, "hidden," and γαμος, "a marriage."

Male Fern (*Aspidium Filix mas*, SMITH.)

This plant, which belongs to the Jussieuan order, *Filices*, is a native of Britain, coming into seed in July and August. The leaves are in tufts, with the mid-rib sealy. The reproductive particles are contained in small brown dot-like capsules on the under edges of the leaves. The roots, which are the parts used, are blackish, sealy, and much matted.

Fourth Order, *Seaweeds* (Algæ).

In this order, the organisation is very simple; the vesicles, containing the reproductive particles or spores, are situated on the outside.

Bladder Wrack (*Fucus vesiculosus*, LINN.)

This plant, which belongs to the Jussieuan order *Algæ*, is a native of the British seas, bearing its fruit in spring. The leaf is smooth, glossy, and dark olive, having a mid-rib tapering from the base. The male vesicles are hollow; the female vesicles filled with jelly. The whole plant is used.

Fifth Order, *Lichens* (Lichenes).

In this order the reproductive particles, or spores, are enclosed in shields or tubercles.

Iceland Moss (*Lichen Islandicus*, LINN.)

This plant, which belongs to the Jussieuan order, *Licheneæ*, is a native of the north of Europe. The leaves are dry, leathery, of an irregular shape, and waved and notched at the edges, which are hairy. The whole plant is used.

Dyer's Lichen, or Archil (*Lichen Rocella*, LINN.—  
*Rocella tinctoria*, DUBLIN.)

This plant, which belongs to the Jussieuan order, *Licheneæ*, is a native of Britain and the Canary Isles.



It is from one to two inches high, growing on rocks in small branched tufts, not unlike some corals. A powder prepared from the plant is used.

*Sixth Order, Mushrooms (Fungi).*

In this order the reproductive particles are in the form of fine dust.

Agaric of the Oak (*Boletus igniarius*, WILLD.)

This fungus, which belongs to the Jussieuan order, *Fungi*, is a native of Britain, found growing on decaying oaks and ashes. The bonnet (*pileus*) is scaly, convex, depressed in the centre, and from six to ten inches in diameter. It has no stem, and is furnished beneath with pores, instead of such gills as are seen in the common edible mushroom. The inner part, after being beaten with a hammer, and called *amidou*, is used.

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Having thus given a brief description of all the officinal plants of the British colleges, according as they are arranged in the Linnæan system, I shall now give an outline of the Jussieuan system, with lists of both the officinal and other medicinal plants, according to their classes and orders.

## THE JUSSIEUAN SYSTEM.

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It was the principle of Jussieu to class plants primarily by their seed lobes\*, and secondarily by the flowers, not by counting the stamens and pistils, like Linnæus, but according to the relative situation of these, as well as of the seed organ, and the petals, and the calyx. This, therefore, must be evidently more complicated and difficult to a beginner; but as this system happens to be somewhat in fashion, it would be wrong in me to omit it in a work of this sort. I shall accordingly class here both the officinal plants and some others, which, though not officinal, are reputed medicinal.

### FIRST DIVISION. — ACOTYLEDONOUS PLANTS.

#### FIRST CLASS — ACOTYLEDONES, OR CELLULARES.



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\* Technically *Cotyledons*.

In this class are arranged plants which have no obvious seed lobes, and which are furnished with cells, but no sap or pulp vessels. There are ten orders, but only three of these contain medicinal plants.

### *Sea Weeds (Algæ).*

Organisation very simple; the vesicles containing the reproductive particles, or spores, situated on the outside.

Corsican Moss (*Fucus Helminthochorton*).

Bladder Wrack (*Fucus vesiculosus*).

### *Mushrooms (Fungi).*

The reproductive particles, or spores, are in the form of fine dust.

White Agaric (*Boletus Laricis*).

Pepper Mushroom (*Agaricus piperatus*).

### *Lichens (Licheneæ).*

The reproductive particles, or spores, are enclosed in shields or tubercles.

Iceland Moss (*Lichen Islandicus*).

Orchal (*Lichen Rocella*).

Liver Wort (*Lobaria pulmonaria*).

Cup Moss (*Cenomyce pyxidatus*).

### *Ferns (Filices).*

The reproductive particles, or spores, contained in scaly capsules on the leaves.

Male Fern (*Aspidium filix mas*).

Rock Spleen Wort (*Asplenium trichomanes*).

Black Maiden Hair (*Adiantum nigrum*).

Common Maiden Hair (*Adiantum Capillis Veneris*).

Canada Maiden Hair (*Adiantum pedatum*).

Miltwaste (*Ceterach officinarum*).

Flowering Fern (*Osmunda regalis*).

Moon Wort (*Osmunda lunaria*).

## SECOND DIVISION.—MONOCOTYLEDONOUS PLANTS.

Seeds with one seed lobe.

## SECOND CLASS—MONOHYPOGYNIA.



Flowers with the stamens, generally two, inserted under the seed organ, and fixed to the receptacle. There are seven orders, but only four contain medicinal plants.

*Pepper Plants* (Piperitæ).

Flowers without calyx or corolla ; fruit one-seeded.

Black Pepper (*Piper nigrum*).  
Cubeb (*Piper cubeba*).

Betel (*Piper betel*).  
Long Pepper (*Piper longum*).

*Cuckoo Pints* (Aroideæ).

Flowers in a sheathing calyx ; seed-organ of one or three cells.

Cuckoo pint (*Arum maculatum*).  
Swamp Cabbage (*Symplocarpus fœtida*).

Indian turnip (*Arum triphyllum*).  
Sweet Flag (*Acorus calamus*).

*Galangales* (Cyperoideæ).

Flowers with a shell for a calyx ; seed-organ one celled.

Long Galangale (*Cyperus longus*).  
German Sarsaparilla (*Carex arenaria*).

Round Galangale (*Cyperus rotundus*).  
Sea Rush (*Scirpus maritimus*).

*Grasses* (Gramineæ).

The flowers chaffy; seed organ simple; seed farinaceous.

Oats (*Avena sativa*).  
 Wheat (*Triticum sativum*).  
 Barley (*Hordeum vulgare*).  
 Broom reed (*Arundo phragmites*).  
 Rice (*Oriza sativa*).

Dog Grass (*Triticum repens*).  
 Rye (*Secale cereale*).  
 Provence Reed (*Arundo donax*).  
 Sugar Cane (*Saccharum officinarum*).  
 Manna Grass (*Glyceria fluitans*).

## THIRD CLASS.—MONOPERIGYNIA.



Flowers with the stamens fixed to the calyx, inserted around the seed organ.

*Palms* (Palmæ).

Flowers in a double six parted calyx; three seed organs, two of which are commonly infertile.

Date Tree (*Phœnix dactylifera*). Sago Tree (*Sagus farinaria*).

*Sparrow Grasses* (Asparagineæ).

Flowers in a four or six parted coloured calyx; seed organ not adherent, three celled; fruit, a berry.

Sparrow Grass (*Asparagus officinalis*). China Root (*Smilax China*).  
 Sarsaparilla (*Smilax sarsaparilla*). Knee Holly (*Ruscus aculeatus*).

*Hellebores* (Colchicæ).

Flowers in a six parted calyx; seed-organ three

sided, three valved, and three celled; seeds numerous.

Meadow Saffron (*Colchicum autumnale*).

Cevadilla (*Veratrum sabadilla*).

White Hellebore (*Veratrum album*).

Green Hellebore (*V. viridis*).

### *Lilies* (Liliaceæ).

Flowers in a sheath, or a bundle; calyx with six coloured divisions; seed organ three valved, and three celled.

White Lily (*Lilium candidum*).

Garlic (*Allium sativum*).

Leek (*Allium porrum*).

Onion (*Allium cepa*).

Squill (*Scilla maritima*).

Spike Aloes (*Aloes spicata*).

Perfoliate Aloes (*Aloes perfoliata*).

Mealy Stargrass (*Aletris farinosa*).

### *Flags* (Irideæ).

Flowers in a sheath; calyx with six irregular divisions; summit like a petal; seed-organ three celled.

Yellow Water Flag (*Iris pseudo-acorus*).

Blue Flag (*Iris versicolor*).

Florentine Orris (*Iris Florentina*).

German Orris (*Iris Germanica*).

Saffron (*Crocus sativus*).

Gladwyn (*Iris fœtidissima*).

### FOURTH CLASS.—MONOEPIGYNIA.



Flowers with the stamens united to the pistil, above the seed organ.

### *Gingers* (Amomæ).

Flowers solitary, in spikes; calyx double, each



with three divisions; one stamen; seed organ three celled.

Cardamom (*Amomum cardamomum*).

Ginger (*Amomum zingiber*).

Officinal Zedoary (*Kæmpferia galanga*).

Long Zedoary (*Amomum zedoaria*).

Round Zedoary *Kæmpferia rotunda*.

Arrow Root (*Maranta arundinacea*).

### *Orchises* (Orchideæ).

Flowers in a spike; calyx of three external and three internal divisions; one stamen; seed-organ inferior, and three valved.

Salep (*Orchis mascula*).

Vanilla (*Epidendrum Vanilla*).

### THIRD DIVISION.—DICOTYLEDONOUS PLANTS.

*Seeds with two or more seed lobes.*

#### I. APETALOUS.

#### FIFTH CLASS.—EPISTAMINIA.



Flowers with the stamens inserted above the seed-organs, and fixed on the pistil.

### *Birth Worts* (Aristolochiæ).

Flowers axillary; calyx one-leaved or irregular; fruit six celled.

European Hazel Wort (*Asarum Europæum*).

Round Birth Wort (*Aristolochia rotunda*).

Virginian Snake Root (*Serpentaria Virginica*).

Canadian Hazel Wort (*Asarum Canadense*).

Long Birth Wort (*Asarum longa*).

Hypocistis (*Citinus Hypocistis*).

## SIXTH CLASS.—PERISTAMINIA.



Flowers with the stamens inserted around the seed-organ, and fixed to the calyx.

*Sanders* (Santalaceæ).

Flowers small, with four or five stamens; seed organ one celled; the fruit a drupe, containing a nut.

White Sanders (*Santalum album*).

*Lace Woods* (Thymeleæ).

Flowers hermaphrodite, with eight, seldom ten, stamens; fruit a one-seeded berry.

Garou (*Daphne Gnidium*).

Dwarf Laurel (*D. laureola*).

Mezereon (*D. mezereum*).

Leather Wood (*Dirca palustris*).

*Laurels* (Laurineæ).

Flowers in panicles or umbels; calyx four or six parted; seed-vessel free, of one cell, and one seed; stone fruit.

Sweet Bay Tree (*Laurus nobilis*).

Sassafras (*Laurus sassafras*).

Cassia Laurel Tree (*Laurus cassia*).

Cinnamon Tree (*Laurus cinnamomum*).

Camphor Tree (*Laurus camphora*).

Cullilawan Tree (*Laurus cullaban*).

*Polygonum* (Polygoneæ).

Flowers small, in spikes or panicles; calyx of one divided leaf; seed organ free, of one cell; fruit triangular.

Bistort (*Polygonum bistorta*).

Garden Patience (*Rumex patientia*).

Sorrel (*Rumex acetosa*).

Heath Sorrel (*Rumex acetosella*).

Waved-leaved Rhubarb (*Rheum undulatum*).

Rhapontic Rhubarb (*Rheum rhaponticum*).

Indian Rhubarb (*Rheum palmatum*).

Compact Rhubarb (*Rheum compactum*).

### Oraches (Chenopodææ).

Flowers small; calyx of one persistent leaf; four to ten stamens; seed-organ free, and one-celled.

Jerusalem Oak (*Chenopodium botrys*).

Mexican Tea Plant (*Chenopodium ambrosioides*).

Salt Wort (*Salsola soda*).

American Nightshade (*Physalacca decandra*).

Good King Henry (*Chenopodium bonus Henricus*).

Wormseed (*Chenopodium anthelminticum*).

Fætid Orach (*Chenopodium vulvaria*).

Fætid Ground Pine (*Camphorosma monspeliaca*).

### SEVENTH CLASS.—HYPOSTAMINIA.



Flowers with the stamens inserted below the seed-organs, and fixed on the receptacle of the pistil.

### Plantains (Plantaginææ).

Flowers in egg oblong spikes; calyx with four divisions; corolla four lobed; stamens four; fruit two valved.

Waybread (*Plantago major*).

Sea Plantain (*P. maritima*).

Rib Wort (*P. lanceolata*).

Branching Plantain (*P. psyllium*).

### Toothworts (Plumbaginææ).

Flowers in spikes or heads; the corolla with four deep divisions; stamens five; pistils five.

Tooth wort (*Plumbago Europæa*).

Marsh Rosemary (*Statice Caroliniensis*).

## II.—MONOPETALOUS.

## EIGHTH CLASS.—HYPOCOROLLIA.



Flowers with the petal inserted below the seed organ, the corolla carrying the stamens, and fixed on the receptacle of the pistil.

*Globe Flowers* (Globulariæ).

Flowers in heads; calyx four parted; corolla four or five parted, one pistil; fruit with one seed.

Common Globe Flower (*Globularia vulgaris*).

French Daisy (*G. Alypum*).

*Figworts* (Scrophulariæ).

Flowers in spikes; calyx four or five parted, corolla irregular; one pistil; fruit two valved.

Shop Speedwell (*Veronica officinalis*).

Brooklime (*Veronica beca-bunga*).

Germander Speedwell (*Veronica chamædrys*).

Rock Speedwell (*Veronica Teucrium*).

Spiked Speedwell (*Veronica spicata*).

Hedge Hyssop (*Gratiola officinalis*).

Eye-bright (*Euphrasia officinalis*).

Fox-glove (*Digitalis purpurea*).

*Brank ursines* (Acanthaceæ).

Flowers with from two to three flower scales; calyx four or five parted; one pistil; seeds two or more.

Brank-ursine, or Bear's-breech (*Acanthus mollis*).

*Jasmin* (Jasminæ).

Flowers in bunches or bundles; calyx four or five toothed; stamens two; fruit two celled.

Olive Tree (*Olea Europæa*).

Fragrant Olive Tree (*Olea fragrans*).

Lilac (*Syringa vulgaris*).

Ash (*Fraxinus excelsior*).

Flowering Ash (*Fraxinus ornas*).

Round-leaved Ash (*Fraxinus rotundifolia*).

*Labiæ Flowers* (Labiæ).

Flowers odorous; calyx tubular, and five parted; corolla five parted, with two lips; stamens four, two of them longer; seeds four.

Rosemary (*Rosemarinus officinalis*).

Garden Sage (*Salvia officinalis*).

Meadow Sage (*Salvia pratensis*).

Garden Clari (*Salvia sclarea*).

Syrian Mastich (*Teucrium marum*).

Germander (*Teucrium chamaedrys*).

Water Germander (*Teucrium scordium*).

Ground Pine (*Teucrium chamaepylis*).

French Ground Pine (*Teucrium ivia*).

Peppermint (*Mentha piperita*).

Canadian Mint (*Mentha Canadensis*).

Garden Mint (*Mentha gentilis*).

Curled Mint (*Mentha crispa*).

Spear Mint (*Mentha viridis*).

Pennyroyal (*Mentha pulegium*).

Hyssop (*Hyssopus officinalis*).

Summer Savory (*Satureia hortensis*).

Cat Mint (*Nepeta cataria*).

True Lavender (*Lavandula vera*).

Spike Lavender (*Lavandula spica*).

French Lavender (*Lavandula stæchas*).

Ground Ivy (*Glechoma hederacea*).

Dead Nettle (*Lamium album*).

Betony (*Belonica officinalis*).

Horehound (*Marrubium vulgare*).

Black Horehound (*Bullola nigra*).

Mother-wort (*Leonurus cardiaca*).

Thyme (*Thymus vulgaris*).

Calamint (*Thymas calamintha*).

Wild Thyme (*Thymus serpyllum*).

Wild Marjoram (*Origanum vulgare*).

Sweet Marjoram (*Origanum marjorana*).

Balm (*Melissa officinalis*).

Sweet Basil (*Ocimum basilicum*).

Self-heal (*Prunella vulgaris*).

Horse Mint (*Monarda punctata*).

Dittany (*Cunilla mariana*).

American Pennyroyal (*Hedeoma pulegioides*).

*Broom Rapes (Orobanchæ).*

Parasitic brown-coloured plants; flowers with flower scales; one pistil; seed-organ two celled, and many seeded.

Virginian Cancer Root (*Orobanchæ Virginiana*).

One-flowered Cancer Root (*O. uniflora*).

*Nightshades (Solanæ).*

Flowers solitary, or in spikes; calyx five parted; corolla wheel shaped, and five parted; stamens five; one pistil; fruit a two-valved capsule, or a two-celled berry.

Deadly Nightshade (*Atropa belladonna*).

Mandrake (*Atropa mandragora*).

Potato Plant (*Solanum tuberosum*).

Bitter-sweet (*Solanum dulcamara*).

Garden Nightshade (*Solanum nigrum*).

Love Apple (*Solanum Lycopersicum*).

Winter Cherry (*Physalis alkekengi*).

Black Henbane (*Hyoscyamus niger*).

Golden Henbane (*Hyoscyamus aureus*).

White Henbane (*Hyoscyamus albus*).

Thorn Apple (*Datura stramonium*).

Tobacco (*Nicotiana tabacum*).

*Borrages (Borraginæ).*

Flowers with flower scales in spikes; calyx five parted; stamens five; one pistil; seeds four.

Hound's Tongue (*Cynoglossum officinale*).

Borrage (*Borrago officinalis*).

Comfrey (*Symphytum officinale*).

Bugloss (*Anchusa italica*).

Spotted Lung-wort (*Pulmonaria officinalis*).

Sebesten Plant (*Cordia mira*).

*Bind Weeds (Convolvulacæ).*

Flowers with the calyx five parted; corolla five parted; stamens five; one pistil; fruit with from two to four cells.



Jalap ( <i>Convolvulus jalapa</i> ).	Scammony ( <i>Convolvulus scam-</i> <i>monia</i> ).
Turpeth ( <i>Convolvulus turpe-</i> <i>thum</i> ).	Wild Potato ( <i>Convolvulus pun-</i> <i>duralus</i> ).
Mechoacan ( <i>Convolvulus me-</i> <i>choacan</i> ).	Hedge Convolvulus ( <i>Convolvulus</i> <i>sepium</i> ).
Field Convolvulus ( <i>Convolvulus</i> <i>arvensis</i> ).	Sea Convolvulus ( <i>Convolvulus</i> <i>suldanella</i> ).

### *Gentians* (Gentianæ).

Flowers with a one-leafed persistent calyx; corolla of one five parted petal; fruit two valved and two celled.

Shop Gentian ( <i>Gentiana lutea</i> ).	Purple Gentian ( <i>Gentiana pur-</i> <i>purea</i> ).
Dotted-leaved Gentian ( <i>Gen-</i> <i>tiana punctata</i> ).	Stemless Gentian ( <i>Gentiana</i> <i>acaulis</i> ).
Blue Gentian ( <i>Gentiana Cates-</i> <i>bæi</i> ).	American Columbo ( <i>Frasera</i> <i>Walteri</i> ).
Chiretta ( <i>Chirayla</i> ).	Centaury ( <i>Erythrina centau-</i> <i>rium</i> ).
American centaury ( <i>Chironia</i> <i>angularis</i> ).	Trefoil or Buck-bean ( <i>Menyan-</i> <i>thes trifoliata</i> ).
Pink Root ( <i>Spigelia Marylandica</i> ).	

### *Dog's Banes* (Apocynæ).

Flowers with the calyx one-leaved and five parted; corolla of one leaf; stamens five; fruit one celled and many seeded.

Arguel Dog Wort ( <i>Cynanchum</i> <i>arguel</i> ).	Emetic Dog Wort ( <i>Cynanchum</i> <i>ipecacuanha</i> ).
Cottony Dog Wort ( <i>Cynanchum</i> <i>tomentosum</i> ).	Montpelier Dog Wort ( <i>Cynan-</i> <i>chium monspeliacum</i> ).
Poison Dog Wort ( <i>Cynanchum</i> <i>vincetorum</i> ).	Larger Periwinkle ( <i>Vinca ma-</i> <i>jour</i> ).
Flux Wort ( <i>Nerium antidysen-</i> <i>tericum</i> ).	St. Ignatius' Bean ( <i>Strychnos</i> <i>Ignatia</i> ).
Poison Nut ( <i>Strychnos nux</i> <i>vomica</i> ).	Adder Nut ( <i>Strychnos colu-</i> <i>brina</i> ).
Butterfly Weed ( <i>Asclepias lu-</i> <i>berosa</i> ).	Syrian Silk Weed ( <i>Asclepias</i> <i>Syriaca</i> ).
Carnation Silk Weed ( <i>Asclepias</i> <i>incarnata</i> ).	Dog's Bane ( <i>Apocynum andro-</i> <i>sæmifolium</i> ).
Egyptian Secamone ( <i>Secamone</i> <i>Egyptiaca</i> ).	Emetic Scammony ( <i>Secamone</i> <i>emetica</i> ).

## NINTH CLASS.—PERICOROLLIA.



Flowers with the petals inserted on the calyx around the seed organ.

*Persimmons* (Dyospyreæ).

Flowers with the calyx one-leaved, unequal, and four or five toothed; corolla one-leaved, and regular; seed-organ four-celled.

Persimmon (*Dyosperos Virginiana*).

Storax (*Styrax officinalis*).

Benzoin Tree (*Styrax benzoin*).

Smooth Storax (*St. lævigatum*).

*Heaths* (Ericineæ).

Flowers with a one-celled persistent calyx; corolla of one petal and five parted; stamens eight to ten; fruit with five valves and five cells.

Bear Berry (*Arbutus una ursi*).

Winter-green, pippsisewa (*Chimaphila umbellata*).

Sorrel Tree (*Andromeda arboorea*).

Moor Wort (*Andromeda maritima*).

Mountain Berry (*Gaultheria procumbens*).

Trailing Earth Wort (*Epigaea repens*).

*Bel Flowers* (Campanulaceæ).

The flowers are commonly blue or white; the calyx four or five parted; the corolla of one petal; stamens five; one pistil; seed-organ with one to three cells.

Throat Wort (*Campanula trachelium*).

Indian Tobacco (*Lobelia inflata*).

Red Cardinal Flower (*Lobelia cardinalis*).

Blue Cardinal Flower (*Lobelia syphilitica*).

## TENTH CLASS.—EPICOROLLIA-SYNANTHEREÆ.



Flowers with the petals of the corolla inserted on the pistil, above the seed-organ.

*Thistles* (Carduaceæ).

Flowers all flosculous; receptacle villous; pistil with a circular row of hairs under the fork of the summit.

Ladies' Thistle (*Carduus marianus*).

Burdock (*Arctium lappa*).

Common Star Thistle (*Centaurea calicitrappa*).

Blessed Thistle (*Centaurea benedicta*).

Common Blue-bottle (*Centaurea cyanus*).

Greater Centaury (*Centaurea centaurium*).

St. Barnaby's Thistle (*Centaurea jacea*).

*Bitter Worts* (Corymbiferae).

Flowers most commonly radiated; the pistil without hairs.

Chamomile (*Anthemis nobilis*).

Stinking Chamomile (*Anthemis cotula*).

Dyer's Chamomile (*Anthemis tinctoria*).

Pellitory of Spain (*Anthemis pyrethrum*).

Sneeze Wort (*Achillea ptarmica*).

Yarrow or Milfoil (*Achillea millefolium*).

Dwarf Milfoil (*Achillea nana*).

Musk Milfoil (*Achillea moschata*).

Maudlin Tansy (*Achillea arvensis*).

Wormwood (*Artemisia absinthium*).

Roman Wormwood (*Artemisia Pontica*).

Mug Wort (*Artemisia vulgaris*).

Wormseed (*Artemisia Judaica*).

Icy Wormwood (*Artemisia glacialis*).

Spiked Wormwood (*Artemisia spicata*).

Southernwood (*Artemisia rotundifolia*).

Sementine (*Artemisia contra*).

Stragon (*Artemisia dracunculus*).

Tansy ( <i>Tanacetum vulgare</i> ).	Alceost ( <i>Tanacetum balsamita</i> ).
Peverfew ( <i>Matricaria parthenium</i> ).	Chamomile Peverfew ( <i>Matricaria chamomilla</i> ).
Garden Marigold ( <i>Calendula officinalis</i> ).	Wild Marigold ( <i>Calendula arvensis</i> ).
Leopard's-bane ( <i>Arnica montana</i> ).	Elecampane ( <i>Inula helenium</i> ).
Colt's foot ( <i>Tussitago Farfara</i> ).	Balm-leaved Spot-wort ( <i>Spiranthus acmella</i> ).
Gardener's Spot wort ( <i>Spiranthus oleracea</i> ).	Groundsel ( <i>Senecio vulgaris</i> ).
Ayapana ( <i>Eupatorium ayapana</i> ).	Hemp Agrimony ( <i>Eupatorium cannabinum</i> ).
Wild Horehound ( <i>Eupatorium pilosum</i> ).	Thorough Wort ( <i>Eupatorium perfoliatum</i> ).
Purple Eupatorium ( <i>Eupatorium purpureum</i> ).	Canadian Flea-bane ( <i>Erigeron Canadense</i> ).
Pennsylvanian Flea-bane ( <i>Erigeron Pennsylvanicum</i> ).	Various-leaved Flea-bane ( <i>Erigeron heterophyllum</i> ).

### *Chicories* (Cichoracæ).

Head of flowers entirely formed of semiflorets; the plants lactescent, that is, full of milky juice.

Strong-scented Lettuce ( <i>Lactuca virosa</i> ).	Common Lettuce ( <i>Lactuca sativa</i> ).
Dandelion ( <i>Leontodon taraxacum</i> ).	Esculent Vipers' Grass ( <i>Scorzonera Hispanica</i> ).
Wild Chicory ( <i>Cichorium intybus</i> ).	Endive ( <i>Cichorium Endivia</i> ).

### ELEVENTH CLASS.—EPICOROLLIA-CORISANTHERIA.



Flowers with the petals of the corolla inserted above the seed-organ on the pistil; the stamens distinct, and the anthers not united.

### *Teazles* (Dipsacæ.)

Flowers in heads, on a common receptacle, and sur-

rounded with a common fence ; corolla of one petal ; stamens four or five.

Devil's Bit (*Succisa Fuchsii*).

Field Scabious (*Scabiosa arvensis*).

### Valerians (Valerianæ).

Flowers naked, not in heads ; calyx irregular ; corolla unequally five lobed ; stamens one to five ; summit of the pistil three parted ; leaves opposite.

Shop Valerian (*Valeriana officinalis*).

Celtic Valerian (*Valeriana Celtica*).

Garden Valerian (*Valeriana Phu*).

Wood Valerian (*Valeriana dioica*).

### Madders (Rubiaceæ).

The flowers have an entire four or five toothed calyx ; corolla four or five parted ; stamens four or five ; seed-organ two celled, the disk inserted on the pistil.

Cheesc Rennet (*Gallium verum*).

Quinsy Wort (*Asperula Cynanchica*).

Madder Plant (*Rubia tinctorum*).

Grey or Loxa Bark (*Cinchona condaminea*).

Calisaya Bark (*Cinchona cordifolia*).

Orange Bark (*Cinchona lancifolia*).

Red Bark (*Cinchona oblongifolia*).

White Bark (*Cinchona ovulifolia*).

St. Domingo Bark (*Exostemma floribunda*).

St. Lucia Bark (*Exostemma Caribæa*).

Georgia Bark (*Pinkneya pubescens*).

Portland Bark (*Portlandia grandiflora*).

Coffee Plant (*Coffea Arabica*).

Ipecacuan (*Cephaelis ipecacuanha*).

Emetic Lifewort (*Pyschotria emetica*).

White Ipecacuan (*Richardsonia Brasiliensis*).

Lifewort (*Pyschotria herba-cea*).

Kino Tree (*Nauclea Gambeer*).

### Elders (Caprifoliaceæ).

Flowers with the calyx adhering to the seed-organ ; the corolla one petaled ; fruit fleshy, with one or more seeds.

Black Elder (*Sambucus niger*).

Canadian Elder (*Sambucus Canadensis*).

Dwarf Elder (*Sambucus ebulus*).

Fever Wort (*Triosteum perfoliatum*).

*Ivies* (Hederaceæ).

Flowers in simple umbels; calyx four or five toothed; corolla with four or five petals; stamens four or five; fruit fleshy, with from two to five nuts.

Ivy (*Hedera Helix*).

Swamp Dogwood (*Cornus sericea*).

Dogwood (*Cornus florida*).

Pennsylvanian Dogwood (*Cornus circinata*).

## III. POLYPETALOUS.

## TWELFTH CLASS.—EPIPETALIA.



Flowers with the stamen and corolla inserted on the pistil, above the seed-organ.

*Ginsengs* (Araliaceæ).

Flowers small and in umbels; calyx entire and toothed; corolla from five to six petals; stamens the same; fruit a berry; cells with one seed.

Prickly Ash (*Aralia spinosa*).

Yellow Root (*Zanthoxylum fraxineum*).

Naked Ash (*Aralia nudicaulis*).

Ginseng (*Panax quinquefolium*).

*Umbelled Plants* (Umbelliferæ).

Flowers in umbels, with a fence; calyx five toothed; corolla five petals; stamens five; seed-organ two-celled.

Anise Plant (*Pimpinella Anisum*).

Caraway Plant (*Carum carvi*).

Strong-scented Parsley (*Apium graveolens*).

Burnet Saxifrage (*Pimpinella saxifraga*).

Common Parsley (*Apium petroselinum*).

Baldmoney (*Meum vulgare*).



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|---|--|
| Sweet Fennel ( <i>Anethum fœniculum</i> ).        | Dill Plant ( <i>Anethum graveolens</i> ).        |
| Cumin ( <i>Cuminum cyminum</i> ).                 | Coriander ( <i>Coriandrum sativum</i> ).         |
| Hemlock ( <i>Conium maculatum</i> ).              | Fool's Hemlock ( <i>Æthusa cynapium</i> ).       |
| Water Hemlock ( <i>Cicutaria aquatica</i> ).      | American Hemlock ( <i>Cicutu maculata</i> ).     |
| Galbanum ( <i>Selinum galbanum</i> ).             | Marsh Smallage ( <i>Selinum palustre</i> ).      |
| Carrot ( <i>Daucus carota</i> ).                  | Chervil ( <i>Scandix cerefolium</i> ).           |
| Ammoniacum Plant ( <i>Heracleum gummiferum</i> ). | Opopanax Plant ( <i>Pastinaca opopanax</i> ).    |
| Assafoetida Plant ( <i>Ferula assafoetida</i> ).  | Angelica Plant ( <i>Angelica archangelica</i> ). |
| Sea Fennel ( <i>Crithmum maritimum</i> ).         | Common Eryngo ( <i>Eryngium campestre</i> ).     |
| Water Eryngo ( <i>Eryngium aquaticum</i> ).       | Sea Holly ( <i>Eryngium maritimum</i> ).         |
| Larger Sandwort ( <i>Anmi majus</i> ).            | Lovage ( <i>Ligusticum levisticum</i> ).         |
| Masterwort ( <i>Imperatoria ostruthium</i> ).     | Hemlock Dropwort ( <i>Ænanthe crocata</i> ).     |

THIRTEENTH CLASS.—HYPOPETALIA.



Flowers with the stamens and the corolla inserted below the seed-organ on the receptacle.

*Ranunculuses* (Ranunculaceæ).

Flowers with the calyx from three to five leaves; corolla, when present, with five or more petals; stamens numerous; fruit one-celled, not many seeds.

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|--|--|
| Bulbous Crowfoot ( <i>Ranunculus bulbosus</i> ). | Meadow Crowfoot ( <i>Ranunculus acris</i> ).   |
| Wood Anemone ( <i>Anemone nemorosa</i> ).        | Traveller's Joy ( <i>Clematis vitalba</i> ).   |
| Virgin's Bower ( <i>Clematis erecta</i> ).       | Pæony ( <i>Pæonia officinalis</i> ).           |
| Black Hellebore ( <i>Helleborus niger</i> ).     | Green Hellebore ( <i>Helleborus viridis</i> ). |

Petid Hellebore ( <i>Helleborus</i> <i>fatidus</i> ).	Stavesacre ( <i>Delphinium sta-</i> <i>phisagria</i> ).
Wolf's-bane ( <i>Aconitum napol-</i> <i>itanus</i> ).	Monk's hood ( <i>Aconitum lyco-</i> <i>clatanum</i> ).
Aconite ( <i>Aconitum anthora</i> ).	Gold Thread ( <i>Coptis trifoliata</i> ).
Canadian Yellow-root ( <i>Hydrus-</i> <i>tis Canadensis</i> ).	Parsley Yellow-root ( <i>Zanthor-</i> <i>hiza apiifolia</i> ).
Black Snake-root ( <i>Cimicifuga</i> <i>serpentaria</i> ).	

### *Poppies* (Papaveraceæ).

Flowers large; calyx with two large leaves; corolla with four petals: stamens numerous; fruit many-seeded.

White Poppy ( <i>Papaver somni-</i> <i>ferum</i> ).	Corn Poppy ( <i>Papaver Rhæas</i> ).
Mexican Poppy ( <i>Argemone</i> <i>Mexicana</i> ).	Blood-wort ( <i>Sanguinaria Cana-</i> <i>densis</i> ).
Horned Poppy ( <i>Chelidonium</i> <i>majus</i> ).	

### *Fumitories* (Fumariaceæ).

Flowers with the calyx very small, and two-leaved; corolla with four unequal petals; stamens six, in two bundles; seed with an arillus.

Shop Fumitory ( <i>Fumaria offi-</i> <i>cinalis</i> ).	Spiked Fumitory ( <i>Fumaria</i> <i>spicata</i> ).
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### *Cross-words* (Cruciferae).

Flowers with a four-leaved calyx; corolla with four petals; stamens two short and four long; fruit a pod.

Shop Fumitory ( <i>Fumaria offi-</i> <i>cinalis</i> ).	Spiked Fumitory ( <i>Fumaria</i> <i>spicata</i> ).
Water Cress ( <i>Sisymbrium nas-</i> <i>turtium</i> ).	Hedge Mustard ( <i>Erysimum offi-</i> <i>cinale</i> ).
Sauce alone ( <i>Erysimum allia-</i> <i>ria</i> ).	Black Mustard ( <i>Sinapis nigra</i> ).
Lady's Smock ( <i>Cardamine pra-</i> <i>tensis</i> ).	Dittander ( <i>Lepidium sativum</i> ).
Scurvy Grass ( <i>Cochlearia offi-</i> <i>nalis</i> ).	Horse Radish ( <i>Cochlearia ar-</i> <i>morucia</i> ).

*Caper Plants* (Capparideæ).

Flowers with a four leaved calyx ; corolla with four petals ; stamens numerous ; fruit fleshy.

Caper Plant (*Capparis spinosa*).

*Maples* (Acerineæ).

Flowers with a five parted persistent calyx ; corolla with five clawed petals ; seed-organ didymous.

Sugar Maple (*Acer saccharinum*).

*Horse Chestnut Tree* (Hippocastaneæ).

Flowers in bunches ; calyx five parted ; corolla with four unequal petals ; fruit a nut.

Horse Chestnut Tree (*Æsculus hippocastanum*).

*Drop Tree* (Guttiferæ).

Flowers with a one or many leaved calyx ; corolla generally with four yellow petals ; pistil simple.

Gamboge Tree (*Stalagmitis cambogioides*).

Camphor Tree (*Dryobalanops camphora*).

*Orange Trees* (Aurantiaceæ).

Flowers with a four or five parted calyx ; corolla with four or five petals ; fruit with many seeds.

Orange Tree (*Citrus aurantium*).

Lemon Tree (*Citrus medica*).

Bergamot Tree (*Citrus bergamia*).

Lime Tree (*Citrus limetta*).

*Tea Trees* (Theaceæ).

Flowers very large ; calyx seven or five parted ; petals five or more, in rows ; fruit with one or two seeds.

Chinese Tea Tree (*Thea sinensis*).

Camellia Tree (*Camellia sasanqua*).

*Bread Trees* (Meliaceæ).

Flowers in panicles; calyx four or five parted; corolla four or five petals; fruit with four or five cells.

Canella Bark Tree (*Winterania canella*). Bread Tree (*Melia azedarach*).

Fever Mahogany (*Swietenia febrifuga*). Ash Bread Tree (*Melia azedarachta*).

*Vine Trees* (Viniferæ).

Flowers small, and in clusters; calyx short; corolla with four or six petals, fruit with one to four seeds.

Vine (*Vitis vinifera*).

*Cranes' Bills* (Geraniaceæ).

Flowers large; calyx deeply five parted; corolla with five petals; stamens five to ten; seed with an arillus.

Herb Robert (*Geranium Robertianum*). Crimson Crane's-bill (*Geranium sanguineum*).

Common Crane's-bill (*Geranium gruinum*). Spotted Crape's-bill (*Geranium maculatum*).

*Wood Sorrels* (Oxalideæ).

Flowers with a persistent, one-leaved, five cleft calyx; corolla with five petals; stamens ten.

Wood Sorrel (*Oxalis acetosella*).

*Mallows* (Malvaceæ).

Flowers with a double calyx; corolla with five stamens; seed vessel wheel shaped.

Marsh Mallow (*Althæa officinalis*). Hollyhock (*Althæa rosea*).

Common Mallow (*Malva sylvestris*). Round-leaved Mallow (*Malva rotundifolia*).

Vervain Mallow (*Malva alcea*). Cacao Tree (*Theobroma cacao*).

*Magnolias* (Magnoliaceæ).

Flowers very large and odorous; calyx from three to four leaved; corolla with three petals, or more, in

rows; stamens numerous; fruit cells with one or many seeds.

Winter's Bark Tree ( <i>Drymis winteri</i> ).	Star-anise ( <i>Illicium anisatum</i> ).
Tulip Tree ( <i>Liriodendron tulipifera</i> ).	Sea-green Magnolia ( <i>Magnolia glauca</i> ).

### *Quassia Trees* (Simarubeæ).

The flowers with a short, persistent, and four or five parted calyx; petals five; stamens ten.

Bitter Quassia Tree ( <i>Quassia amara</i> ).	Lefty Quassia Tree ( <i>Quassia excelsa</i> ).
Simaruba Tree ( <i>Quassia simaruba</i> ).	

### *Moon Seeds* (Menispermæ).

The flowers small; calyx of several rows of leaves; corolla, when present, with rows of petals; a small stone fruit.

Indian Poison Berries ( <i>Cocculus Indicus</i> ).	Columbo ( <i>Menispermum palmatum</i> ).
Ivy Vine ( <i>Cissampelos pareira</i> ).	Cape Ivy Vine ( <i>Cissampelos Capensis</i> ).

### *Berberries* (Berberideæ).

The flowers are small and yellow; calyx three to six leaves; petals three to six; stamens three to six.

Common Barberry ( <i>Berberis vulgaris</i> ).	American Barberry ( <i>Berberis Canadensis</i> ).
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### *May Apples* (Podophylleæ).

Flowers on one footstalk; calyx three or four leaved; corolla with the petals in several rows; stamens numerous.

May Apple ( <i>Podophyllum peltatum</i> ).
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### *Lindens* (Tiliaceæ).

Flowers with the calyx coloured; corolla four or five parted.

Linden or Lime Tree ( <i>Tilia Europæa</i> ).
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*Rock Roses* (Cistææ).

Flowers large; calyx deeply five parted; petals five.

Cretan Rock Rose (*Cistus Creticus*).

*Violets* (Violariæ).

Plants small; calyx deeply five parted; corolla with five unequal petals; stamens five; fruit three valved, and many seeded.

Sweet-scented Violet (*Viola odorata*).

Corn Violet (*Viola arvensis*).

Heart's Ease (*Viola tricolor*).

Dog Violet (*Viola canina*).

Emetic Violet (*Viola ipecacuanha*).

Marsh Violet (*Viola palustris*).

*Milk Worts* (Polygaleæ).

The flowers in spikes, with two side flower scales; corolla from three to four petals; stamens eight.

Bitter Milk-wort (*Polygala amara*).

Rusty Milk-wort (*Polygala rubella*).

Snake-root (*Polygala senega*).

Ratanhy (*Krameria triandria*).

*Rues* (Rutaceæ).

The calyx is deeply five parted; petals four or five; seed organ five ribbed and five celled.

Common Rue (*Ruta graveolens*).

Guaiacum (*Guaiacum officinale*).

True Angustura (*Cusparia febrifuga*).

Buchu (*Diosma crenata*).

*Pinks* (Caryophyllææ).

The calyx with one five toothed leaf; corolla five clawed petals; stamens four, five, or ten.

Pink (*Dianthus caryophyllus*).

Sweet William (*Dianthus barbatus*).

Soap-wort (*Saponaria officinalis*).

Ground Pink (*Sile Virginia*).



*Flaxes* (Linaciæ).

Flowers with the petals not clawed ; seed-organ, ten one seeded cells.

Common Flax (*Linum usitatissimum*).

Purging Flax (*Linum catharticum*).

## FOURTEENTH CLASS.—PERIPETALIA.



Flowers with the stamens fixed to the calyx, around the seed-organ.

*Purslanes* (Portulacæ).

Flowers with the calyx two or more parted ; corolla four or five petals ; stamens variable.

Purslane (*Portulaca oleracea*).

Tamarisk (*Tamarix Gallica*).

*Saxifrages* (Saxifrageæ).

Flowers with the calyx four or five parted ; corolla, when present, of four or five petals ; seeds numerous.

American Sanicle (*Heuchera Americana*).

*Whitlow Worts* (Paronychiæ).

Calyx five parted ; corolla five scale-like petals ; stamens five ; one or more pistils.

Smooth Rupture-wort (*Herniaria glabra*).

Hairy Rupture wort (*Herniaria hirsuta*).

*Stone Crops* (Crassulacæ).

Calyx definitely lobed ; petals same number as the lobes ; stamens double the number of the petals.

Wall Pepper (*Sedum ucre*).

Orpine (*Sedum Telephium*).

*Currant Trees* (Riberiæ).

Shrubs sometimes prickly; calyx five parted; corolla with five small petals; stamens five.

Red Currant (*Ribes rubrum*).

Black Currant (*Ribes nigrum*).

*Myrtles* (Myrtineæ).

Evergreens, having the calyx four or five parted; corolla regular, and with many petals; stamens numerous.

Common Myrtle (*Myrtus communis*).

Clove Bark Tree (*Myrtus caryophyllata*).

Pimento Tree (*Myrtus pimenta*).

Clove Tree (*Caryophyllus aromaticus*).

Pomegranate Tree (*Punica granatum*).

Cajeput Tree (*Melaleuca leucodendron*).

*Roses* (Rosaceæ).

Flowers large, commonly white; calyx five parted; corolla with five regular petals; stamens numerous.

Strawberry Plant (*Fragaria vesca*).

Silver Weed (*Potentilla anserina*).

Cinquefoil (*Potentilla reptans*).

Tormentil (*Tormentilla crecta*).

Common Avens (*Geum urbanum*).

Purple Avens (*Geum rivale*).

Raspberry (*Rubus idæa*).

Common Bramble (*Rubus fruticosus*).

Trailing Bramble (*Rubus procumbens*).

Dewberry (*Rubus villosus*).

Drop-wort (*Spiræa filipendula*).

Meadow-sweet (*Spiræa ulmaria*).

Three-leaved Gillens (*Gillenia trifoliata*).

Leaf-scale Gillens (*Gillenia stipularia*).

Agrimony (*Agrimonia Eupatoria*).

Ladies' Mantle (*Alchemilla vulgaris*).

Burnet Saxifrage (*Poterium sanguisorba*).

Wild Cherry Tree (*Prunus Virginiana*).

Plum Tree (*Prunus domestica*).

Sloe Tree (*Prunus spinosa*).

Common Cherry Tree (*Cerasus vulgaris*).

Red Cherry Tree (*Cerasus mahaleb*).

Black Cherry Tree (*Cerasus Avium*).

Bird Cherry Tree (*Cerasus padus*).

Cherry Laurel (*Cerasus lauro-cerasus*).

Almond Tree (*Amygdalu communis*).

Peach Tree (*Amygdalus Persica*).

Apricot Tree (*Armeniaca vulgaris*).

Dog Rose (*Rosa canina*).

Red Rose (*Rosa Gallica*).

Pale Rose (*Rosa centifolia*).

Apple Tree (*Pyrus malus*).

Quinee Tree (*Cydonia vulgaris*).

Medlar Tree (*Mespilus Germanica*).

*Pea Plants (Leguminosæ).*

Flowers with a bell shaped, five cleft, calyx ; stamens ten ; fruit a pod, or legume, or a two valved capsule.

Blue Melilot ( <i>Melilotus cæruleus</i> ).	Stemless Milk Vetch ( <i>Astragalus exscapus</i> ).
Tragacanth Tree ( <i>Astragalus verus</i> ).	Goats' Thorn ( <i>Astragalus gum-mifer</i> ).
Bladder Senna Tree ( <i>Colutea arborescens</i> ).	Liquorice ( <i>Glycyrrhiza glabra</i> ).
Dragon's-blood Tree ( <i>Pterocarpus draco</i> ).	Sanders Tree ( <i>Pterocarpus santalinus</i> ).
Copaiba Tree ( <i>Copaifera officinalis</i> ).	Peruvian Balsam Tree ( <i>Myroxylum balsamiferum</i> ).
Balsam of Tolu Tree ( <i>Myrospermum peruiferum</i> ).	Cabbage Tree ( <i>Geoffroya inermis</i> ).
Acute-leaved Senna ( <i>Cassia acatifolia</i> ).	Egg-leaved Senna ( <i>Cassia obovata</i> ).
American Senna ( <i>Cassia Marylandica</i> ).	Purging Cassia ( <i>Cassia fistula</i> ).
Tamarind Tree ( <i>Tamarindus Indica</i> ).	Logwood Tree ( <i>Hæmatoxylum Campechianum</i> ).
Nephretic Wood ( <i>Guilandina moringa</i> ).	Gum Arabic Tree ( <i>Mimosa Nitotica</i> ).
Catechu Tree ( <i>Mimosa catechu</i> ).	Gum Senegal Tree ( <i>Mimosa Senegal</i> ).
Wild Indigo ( <i>Baptisia tinctoria</i> ).	Cowhage ( <i>Dolichos pruriens</i> ).
Virginia Goats' Rue ( <i>Galega Virginiana</i> ).	

*Buck Thorns (Rhamneæ).*

Flowers with a four or five lobed calyx ; corolla, when present, with four or five petals ; fruit dry or fleshy.

Buck Thorn ( <i>Rhamnus catharticus</i> ).	Black Alder ( <i>Rhamnus frangula</i> ).
Jujube Tree ( <i>Rhamnus ziziphus</i> ).	Winter Berry ( <i>Prinos verticillatus</i> ).
Common Holly ( <i>Ilex aquifolium</i> ).	Evergreen Cassine ( <i>Ilex vomitoria</i> ).

*Turpentine Trees (Terebinthaceæ).*

Flowers small, in branchy clusters ; calyx deeply four or five parted ; corolla, when present, with five petals ; stamens five or ten ; fruit a drupe.

Elm-leaved Sumach ( <i>Rhus coriaria</i> ).	Poison Oak ( <i>Rhus toxicodendron</i> ).
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Narrow-leaved Sumach ( <i>Rhus copallinum</i> ).	Pennsylvania Sumach ( <i>Rhus glabrum</i> ).
Virginia Sumach ( <i>Rhus typhinum</i> ).	Pistachio Nut Tree ( <i>Pistacia vera</i> ).
Chio or Chian Turpentine ( <i>Pistacia terebinthus</i> ).	Mastich Tree ( <i>Pistacia lentiscus</i> ).
Mecca Balsam ( <i>Amyris Gileadensis</i> ).	Elemi Tree ( <i>Amyris elemifera</i> ).
Ash Angustura ( <i>Brucea ferruginea</i> ).	Olibanum Tree ( <i>Boswellia serrata</i> ).

## FIFTEENTH CLASS.—DICLINIA.

The flowers in this class are destitute of petals.

*Spurges* (Euphorbiaceæ).

The flowers have the calyx often double, and five or ten parted; pistils three, with the summits cleft.

Shop Spurge ( <i>Euphorbia officinarum</i> ).	Lesser Spurge ( <i>Euphorbia thymis</i> ).
Ipecacuan Spurge ( <i>Euphorbia ipecacuanha</i> ).	Large Flowering Spurge ( <i>Euphorbia corollata</i> ).
Wild Spurge ( <i>Euphorbia syriaca</i> ).	Gerard's Spurge ( <i>Euphorbia Gerardiana</i> ).
Cypress Spurge ( <i>Euphorbia cyparissias</i> ).	Annual Mercury ( <i>Mercurialis annua</i> ).
Cassava Plant ( <i>Jatropha manihot</i> ).	Purgine Nut Plant ( <i>Jatropha curcas</i> ).
Cotton-leaved Wild Nut Plant ( <i>Jatropha gossypifolia</i> ).	Spanish Purgine Nut Plant ( <i>Jatropha multifida</i> ).
Cascarilla Tree ( <i>Croton cascarilla</i> ).	Croton Oil Plant ( <i>Croton tiglium</i> ).
Box Tree ( <i>Buxus sempervirens</i> ).	Castor Oil Plant ( <i>Ricinus communis</i> ).

*Nutmeg Trees* (Myristicæ).

Calyx three parted; stamens from four to twelve united; pistils two; fruit a drupe.

Nutmeg Tree (*Myristica moschata*).

*Nettles* (Urticæ).

Calyx of one deeply divided persistent leaf; male

flowers with four or five stamens ; female flowers with two pistils.

Fig Tree ( <i>Ficus carica</i> ).	Contrayerva ( <i>Dorstenia contrayerva</i> ).
Black Mulberry Tree ( <i>Morus nigra</i> ).	Wall Pellitory ( <i>Parietaria officinalis</i> ).
Hemp ( <i>Cannabis sativa</i> ).	Hop Plant ( <i>Humulus lupulus</i> ).
Roman Nettle ( <i>Urtica urens</i> ).	Stinging Nettle ( <i>Urtica dioica</i> ).

### Walnuts (Juglandæ).

Male flowers in catkins, the calyx two or six parted ; female flowers solitary or united ; fruit a drupe.

Common Walnut ( <i>Juglans regia</i> ).	White Walnut ( <i>Juglans cinerea</i> ).
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### Oak Trees (Cupuliferæ).

Male flowers in long catkins, with from five to twenty stamens ; female flowers solitary or united.

Common European Oak ( <i>Quercus robur</i> ).	Gall Nut Oak ( <i>Quercus infectoria</i> ).
Spanish Oak ( <i>Quercus falcata</i> ).	White Oak ( <i>Quercus pedunculata</i> ).

### Willows (Salicineæ).

The flowers are in long or globular catkins ; the seeds are surrounded with silky down.

White Willow ( <i>Salix alba</i> ).	Crack Willow ( <i>Salix fragilis</i> ).
Sallow ( <i>Salix caprea</i> ).	Triandrous Willow ( <i>Salix triandra</i> ).
Black Poplar ( <i>Populus nigra</i> ).	

### Elms (Ulmaceæ).

The calyx is four or five parted ; stamens four or five ; pistils, or rather summits, two.

Common Elm ( <i>Ulmus campestris</i> ).	Red or Slippery Elm ( <i>Ulmus fulva</i> ).
American Elm ( <i>Ulmus Americana</i> ).	Wych Elm ( <i>Ulmus montana</i> ).

*Marsh Myrtles* (Myricæ).

Male flowers with one or several stamens, growing in catkins; female flower solitary.

Marsh Myrtle (*Myrica gale*).

Carolinian Wax Myrtle (*Myrica Caroliniensis*).

Wax Myrtle (*Myrica cerifera*).

Pennsylvanian Wax Myrtle (*Myrica Pennsylvanica*).

*Cone-bearing Trees* (Conifereæ).

Male flowers in catkins; female flowers in scaly catkins; fruit a cone.

Long-leaved Pine (*Pinus palustris*).

Bordeaux Pine (*Pinus maritima*).

Larch (*Pinus larix*).

Juniper Tree (*Juniperus communis*).

Red Cedar (*Juniperus Virginiana*).

Scotch Fir (*Pinus sylvestris*).

Silver Fir Tree (*Pinus picea*).

American Silver Fir (*Pinus balsamea*).

Savin Tree (*Juniperus sabina*).

Spruce Fir (*Pinus abies*).



## MEDICAL ZOOLOGY.

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THE study of Zoology is infinitely more important to the medical practitioner than that of Botany, inasmuch as it supplies useful practical illustrations from the comparison of the various organs and functions of different animals. Those who wish to see a plain though very brief outline of the subject, may be referred to the "ALPHABET OF ZOOLOGY." My present purpose will not admit even an outline of a systematic arrangement, such as I have followed in the botanical articles, and I shall therefore limit myself altogether to descriptive sketches, beginning with quadrupeds, and descending to the smaller animals.

### The Beaver (*Castor Fiber*, LINN., var. *Rossicus*, LOND.)

This quadruped belongs to the Linnæan order, GLIRES, and to CUVIER'S RODENTIA. It is characterised by the fore-teeth in the upper jaw being abrupt; four grinders in both jaws; distinct clavicles; the tail is flat, horizontal, and scaly, except near the base, where it is hairy. It inhabits the northern parts of Europe; Asia, and America, and appears to have been formerly indigenous in England. In both sexes, between the anus and pudendum, there are four membranous follicles, somewhat egg-oblong or rather pear-shaped, containing the medicinal substance termed castor, which is secreted by a congeries of glands. These follicles are

cut out entire, and dried for the market. The best castor comes from the north of Europe; the Russian is exclusively ordered by the London College.

### The Hog (*Sus scrofa*, LINN.)

This quadruped belongs to the Linnæan order BEL-LUÆ, and to Cuvier's PACHYDERMATA. It is characterised by having four converging fore-teeth in the upper jaw, and six in the lower jaw; two short tusks in the upper jaw, and two projecting in the lower jaw; the snout abrupt; the feet cloven. The fat termed lard, chiefly procured from the flank, is the part used.

### The Musk Deer (*Moschus moschiferus*, LINN.)

This quadruped belongs to the Linnæan order, PÆORA, and to Cuvier's RUMINANTIA. It is characterised by having no horns; eight fore-teeth in the lower jaw; and one projecting tusk on each side of the upper jaw. Between the navel and pudendum in the male, lies an oblong membranous bag, about three inches by two, containing the odoriferous substance called musk, the part which is medicinally employed. The animal is a native of the mountains of central Asia. Musk is chiefly imported from China and Russia.

### The Stag, or Hart (*Cervus Elaphus*, LINN.)

This quadruped belongs to the Linnæan order, PÆORA, and to Cuvier's RUMINANTIA. It is characterised by having eight fore-teeth in the lower jaw, and being without tusks; the horns, which are the part used medicinally, are forked, solid, and are cast every year. It is a native of Britain, as well as of most of the temperate northern latitudes, both of the old and new world.

### The Sheep (*Ovis Aries*, LINN.)

This quadruped belongs to the Linnæan order, PECORA, and to Cuvier's RUMINANTIA. It is characterised by having eight incisor teeth in the lower jaw, and being without tusks ; the horns, when present, are hollow, wrinkled, and divergent. The fat called suet, which is the part medicinally used, is chiefly procured from the kidneys, the omentum, and the loins.

### The Spermaceti Whale (*Physeter macrocephalus*, LINN.)

This animal belongs to the Linnæan order, CETÆ, and to Cuvier's CETACEA. It is characterised by having conical teeth in the lower jaw, but none in the upper ; by the back being destitute of an elevated fin, and by the snout being abrupt. The head, which occupies nearly one half of the whole animal, has the greater portion occupied by a triangular bony cavity, containing a white, fluid, oily, substance, to the amount of many tons' weight. On the death of the whale, this concretes into a white unctuous substance, called spermaceti, the part used medicinally.

### The Barn-door Fowl (*Phasianus Gallus*, LINN.)

This bird belongs to the Linnæan order, GALLINÆ, and to Illiger's RASORES. It is characterised by the beak being short and strong ; the cheeks covered with a rough membrane, destitute of feathers ; and the feet furnished with spurs. It is a native of the warmer parts of Asia ; the egg is what is medicinally used : the eggs of the duck, the goose, &c., may be substituted, if necessary.

### The Leech (*Hirudo medicinalis*, LINN.)

This animal belongs to the Linnæan class, VERMES, and the order INTESTINA, and to Cuvier's ANNELIDES

or ANNULOSA. It is characterised by having a body about four or five inches long, capable of contraction and extension, formed of ninety-eight equal segments, somewhat rough, with small granular mamellæ appearing and disappearing at the will of the animal, but not to be traced after it is dead; the colour is green upon the back, with six rust-coloured bands, three on each side; the two interior ones almost without spots; the two middle ones marked with a chain of black velvety points; the two exterior ones, each divided by a small black stripe; the belly is somewhat olive green, broadly bordered, and all spotted with black. The leech attaches itself to solid substances by either end, being furnished with a circular sucker at the anal extremity, and at the head with a horse-shoe sucker, having a triangular mouth in the centre.

The horse-leech and other species may be employed without any of the bad consequences commonly supposed, when the genuine leeches are not to be had.

#### The Oyster (*Ostrea edulis*, LINN.)

The oyster belongs to the Linnæan class, VERMES, and order, TESTACEA, and to Fleming's OSTREADÆ. It is characterised by having a shell inequivalve, irregular, the ligament half internal, placed in a pit, which in the fixed valve increases with age, as the upper valve is displaced and advanced, the shell besides being roundish-oval, with scaly foliations, the upper valve less and flattened, the inner margin very entire. The shells only are used medicinally, and cockle or any other similar shell may be substituted without inconvenience.

#### The Spanish Fly, or Blister Beetle (*Cantharis vesicatoria*, LINN.)

This insect belongs to the Linnæan order, COLEOPTERA, and to Leach's CANTHARIDÆ. It is characterised

by the antennæ being filiform and black ; the palpi four and unequal, the hinder ones clubbed ; the corselet is nearly round ; the wing cases are soft and flexible ; the feet are black and heteromerous. It is about two thirds of an inch in length, and of a gilded green colour. It is a native of Britain, and has been taken near London ; but the shops are supplied from Sicily and from Astracan.

The vine chafer (*Melolontha vitis*), which is often mixed up with Cantharides, has no vesicatory properties. It is to be distinguished by its square body, and not, as Dr. A. T. Thomson says, by its black feet.

### The Honey Bee (*Apis mellifica*, LINN.)

This insect belongs to the Linnæan order, HYMENOPTERA and to Leach's APIDÆ. It is characterised by the worker bees having the first joint of the hind feet in a long square, furnished on the outer side with a silky down, divided in cross bands, or streaked ; the colour of the body black, downy, the hairs of dull yellowish grey, and thickest on the corselet ; the third ring of the abdomen, as well as the succeeding ones, having at their base a small cross band, formed by a light down of a dull ash colour. Both the honey and the wax made by bees are employed medicinally.

### The Oak Gall Fly (*Cynips Quercus folii*, LINN.)

This insect belongs to the Linnæan order, HYMENOPTERA, and to Latreille's GALLICOLÆ. It is characterised by having the antennæ filiform and dark coloured ; the body pale fawn coloured, covered with a whitish silky down ; the eyes black ; a blackish brown shining spot on the abdomen. The insect punctures the tender shoot of the oak (*Quercus cerris*)

with its spiral ovipositor, and introduces its eggs, around which the oak galls are formed, in the course of a day or two, even before hatching.

The Ergot Insect (*Aphis Graminis*).

This is a four-winged fly, similar to the aphid of the rose, but one half smaller, and darker green with black markings. I ascertained, in numerous instances in 1832, that the ergot of rye (*Secale cornutum*) is a morbid enlargement of the grain, caused by the puncture of this insect, and not as it is represented by some, a fungus (*Spermædia clavus*, FRIES), and figured as such by Mr. Burnett, in his "Outlines."

Sponge (*Spongia officinalis*, LINN.)

This is ranked in the Linnæan class, VERMES, order ZOOPHYTA, and in Fleming's SPONGIADÆ. It was long disputed whether the sponge be a plant or an animal production; and it appears to me not yet decided, though the evidence for its animality preponderates. The fabric or skeleton consists of porous fibres, albuminous and gelatinous, with numerous pores, connected internally with anastomosing canals. Water enters by the pores in currents, and is ejected by orifices larger than the pores, as may be seen by placing a living sponge in a shallow dish of water, on the surface of which powdered chalk, &c. may be sprinkled. The eggs or seeds, whichever they be, are expelled by the orifices in numerous, minute, irregularly formed granules, and while floating in the water exhibit spontaneous motion by the rapid motion of their cilia on the fore part of their body. This at least is not conformable to what occurs in any other known egg. It is brought from the Mediterranean.



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